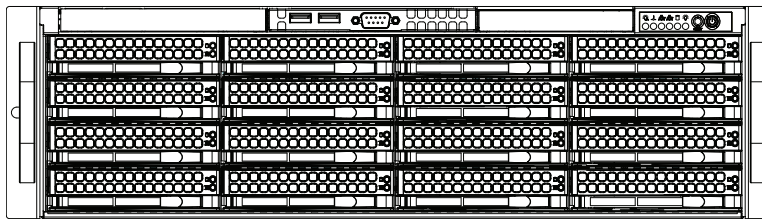
SUPERO®

SC836 Chassis Series



SC836B-R1200B	SC836A-R1200B
SC836BA26-R920B	SC836BA16-R920B
SC836BE26-R920B	SC836BE16-R920B
SC836E1-R800B	SC836E1-R800B
SC836E1-R800V	SC836E2-R800B
SC836E2-R800V	SC836TQ-R710B
SC836TQ-R800B	SC836TQ-R800V

User's Manual

2.0d

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Manual Revision 2.0d
Release Date: September 14, 2012

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC836 3U chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC836 3U chassis features a unique and highly-optimized design. The chassis is equipped with a redundant 710W, 800W, 920W or 1200W high-efficiency power supply. High-performance fans provide ample optimized cooling for the chassis and sixteen hot-swappable drives offer maximum storage capacity in a 3U form factor.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1: Introduction

The first chapter provides a list of the main components included with the SC836 chassis and describes the main features of the chassis. This chapter also includes contact information.

Chapter 2: System Safety

This chapter lists warnings, precautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed before installing and servicing this chassis.

Chapter 3: Chassis Components

Refer here for details on this chassis model including the fans, bays, airflow shields, and other components.

Chapter 4: System Interface

This chapter provides details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 5: Chassis Setup and Maintenance

Refer to this chapter for detailed information on this chassis. You should follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 6: Advanced Setup

This chapter includes detailed instructions for advanced setup configurations including multiple chassis connections.

Chapter 7: Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Compatible Backplanes

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A SC836 Chassis Cables

Appendix B SC836 Power Supply Specifications

Appendix C SAS-836EL Series Backplane Specifications

Appendix D SAS-836TQ Backplane Specifications

Appendix E SAS-836A Backplane Specifications

Appendix F PCC-JBWR2 and CSE-PTJBOD-CB1 Power Control Card Specifications

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Appendix G SC836B Chassis Specifications

Chapter 1

Introduction

1-1 Overview

Supermicro's SC836 storage chassis supports up to sixteen hot-swappable 3.5" SAS/SATA hard drive bays, the industry's highest storage density for a 3U system. The SC836 includse 100% cooling redundancy and high efficiency (1+1) redundant 710W, 800W, or 1200W (93%) Gold Level power supplies with PM BUS functionality for enhanced power management. The SC836 is optimized for the next-generation dual-processor Intel® Xeon® (5500 series) and AMD Opteron™ platforms. Direct attached HDD backplane (TQ version), multilane backplane (A version) and expanders' backplane (E1, E2 versions) are available for application specific solution optimization. Heavy duty palletized packaging is available to ensure secure system reliability during shipping and tool-less, roller rail designs for easy installation and maintenance are standard with each system.

SC836 Chassis Series				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC836B-R1200B	DP/UP	18x SAS/SATA	7x FF	1200W Redundant (Gold Level)
SC836A-R1200B	DP/UP	16x SAS/SATA	7x FF	1200W Redundant (Gold Level)
SC836TQ-R800V / SC836TQ-R800B	DP/UP	16x SAS/SATA	7x FF	R800W Redundant
SC836TQ-R710B	DP/UP	16x SAS/SATA	7x FF	710W DC Redundant
SC836S2-R800V / SC836S2-R800B	DP/UP	16x U320 SCSI dual channel	7x FF	800W Redundant
SC836E1-R800V / SC836E1-R800B	DP/UP	16x SAS/SATA Bays (+) 1x 28 port SAS expander	7x FF	R800W Redundant
SC836E2-R800V / SC836E2-R800B	DP/UP	16x SAS/SATA Bays (+) 2x 28-Port SAS expander	7x FF	800W Redundant

1-2 Shipping List

Part Numbers

Please visit the Supermicro Web site for the latest shipping lists and part numbers for your particular chassis model at www.supermicro.com.

1-3 Chassis Features

The SC836 3U high-performance chassis includes the following features:

CPU Support

The SC836 chassis supports a DP Dual-core Xeon processor. Please refer to the motherboard specifications pages on our Web site for updates on supported processors for this chassis

Hard Drives

The SC836 chassis features sixteen slots for U320 SCSI or SAS/SATA drives. These drives are hot-swappable, meaning thtat once set up correctly these drives may be removed without powering-down the server. In addition, these drives support SAF-TE (SCSI) and SES2 (SAS/SATA).

I/O Expansion slots

Each version of the SC836 chassis includes seven full I/O expansion slots.

Peripheral Drives

Each SC836 chassis supports one slim DVD-ROM drive (optional) These drives allow you to quickly install software or save data.

Other Features

Other onboard features are included to promote system health. These include various five cooling fans, a convenient power switch, reset button, and LED indicators

SCSI Drives

For information on SCSI drives contact the Supermicro Technical Support Department at www.supermicro.com

1-4 Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
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Technical Support:
Email: support@supermicro.com.tw
Tel: +886-(2)-8226-5990

1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 2

System Safety

2-1 Overview

This chapter provides a quick setup to get your chassis up and running. Following the steps in order given should enable you to have your chassis set up and operational within a minimal amount of time. These instructions assume that you are an experienced technician, familiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with the carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold the chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

You will also need it placed near at least two grounded power outlets. The SC836 chassis includes two redundant power supplies which require two grounded outlets.

2-3 Preparing for Setup

The SC836 chassis includes a set of rail assemblies, including mounting brackets and mounting screws you will need to install the systems into the rack. Please read this manual in its entirety before you begin the installation procedure.

2-4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC836 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM (not necessary for hot-swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

- DVD-ROM laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3

Chassis Components

3-1 Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2 Components

Chassis and Chassis Bays

The SC836 chassis may include one optional slim CD-ROM or DVD-ROM, one front port panel, and either sixteen or eighteen hard drive bays. Hard drives must be purchased separately. For the latest shipping lists, visit our Web site at: http://www.supermicro.com.

Backplane

Each SC836 chassis comes with a 3U backplane. Depending upon your order, your backplane will accept SAS/SATA drives or SAS only drives. For more information regarding compatible backplanes, view the appendices found at the end of this manual. In addition, visit our Web site for the latest information: http://www.supermicro.com.

Fans

The SC836 chassis accepts five system fans. System fans for SC836 chassis are powered from the serverboard. These fans are 3U compatible and are powered by 4-pin connectors.

Mounting Rails

The SC836 can be placed in a rack for secure storage and use. To setup your rack, follow the step-by-step instructions included in this manual.

Power Supply

Each SC836 chassis model includes redundant high-efficiency hot-swappable power supply rated at 710, 800, 920 or 1200 Watts. In the unlikely event of a power supply failure, you can remove and replace the failed power supply without powering-d own the system.

Air Shroud

Air shrouds are shields, usually plastic, that funnel air directly to where it is needed. **Always use the air shroud included with your chassis**.

3-3 Where to get Replacement Components

Although not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors/ System Integrators/Resellers. A list of Supermicro Authorized Distributors/System Integrators/Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4

System Interface

4-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. Most SC836 models have two buttons on the chassis a control panel- a reset button and an on/off switch. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

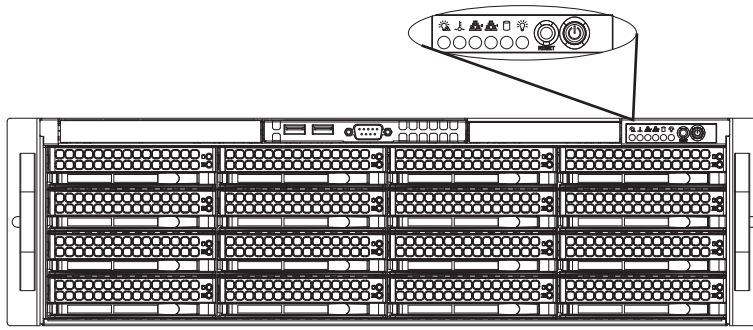
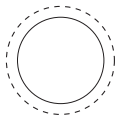


Figure 4-1: SC836 Front Panel

4-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.



- **Reset:** The reset button is used to reboot the system.

- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

4-3 Control Panel LEDs

The control panel located on the front of the SC836 chassis has six LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

- **Power Failure:** When this LED flashes, it indicates a power failure in the power supply.

- **Overheat/Fan Fail:** When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat condition exists.

- **NIC2:** Indicates network activity on LAN2 when flashing.

- **NIC1:** Indicates network activity on LAN1 when flashing.

- **HDD:** Indicates IDE channel activity. SAS/SATA drive and/or DVD-ROM drive activity when flashing.

- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

4-4 Drive Carrier LEDs

Each SAS drive carrier has two LEDs.

- **Blue:** When illuminated, this blue LED (on the front of the drive carrier) indicates drive activity. A connection to the SAS backplane enables this LED to blink on and off when that particular drive is being accessed.
- **Red:** The red LED to indicate a drive failure. If one of the SAS drives fail, you should be refer to your system management software.

Chapter 5

Basic Chassis Setup and Maintenance

5-1 Overview

This chapter details the basic steps required to install components to the chassis. The only tool you will is a Phillips screwdriver. Print this page to use as a reference while setting up your chassis.

When coupled with an 836E series backplane, this chassis is capable of failover, and cascading. Review Chapter 6 and the SAS-836EL appendix in this manual for setup instructions.

5-2 Installation

Removing the Chassis Cover
Installing Hard Drives
Installing the Motherboard (Includes standoff, I/O shield and exapansion card)
Installing the Air Shroud, Rear Fan and Checking the Airflow
Chassis Maintenance (Includes fans, power supply, distributor and front panel)

Note: The SC836E1 and SC836E2 chassis support SAS drives only. For more information, review the SAS 836EL Backplane Specifications located in the appendices of this document.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

5-3 Removing the Chassis Cover

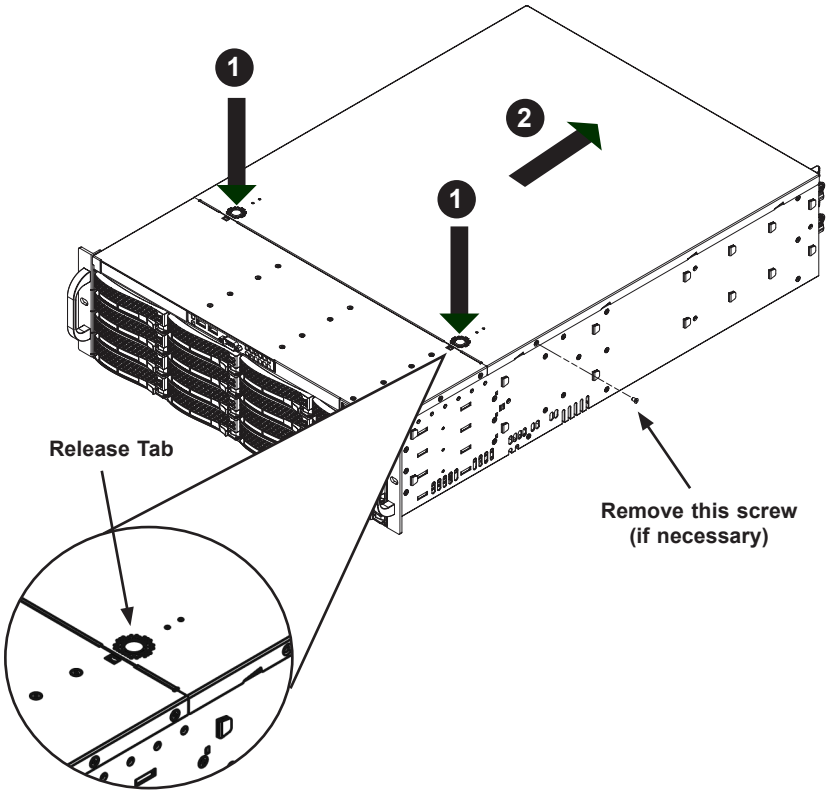


Figure 5-1: Removing the Chassis Cover

Removing the Cover

1. Press the release tabs to remove the cover from the locked position. Press both tabs at the same time. If necessary, you may need to remove the chassis cover screw.

2. Once the top cover is released from the locked position, slide the cover toward the rear of the chassis and lift the cover off the unit.

Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

5-4 Installing the Hard Drives

The drives are mounted in drive trays to simplify their installation and removal from the chassis.

Removing Hard Drive Carriers from the Chassis

Removing Hard Drive Carriers

1. Press the release button on the drive carrier. This extends the drive carrier handle.
2. Use the handle to pull the drive out of the chassis.

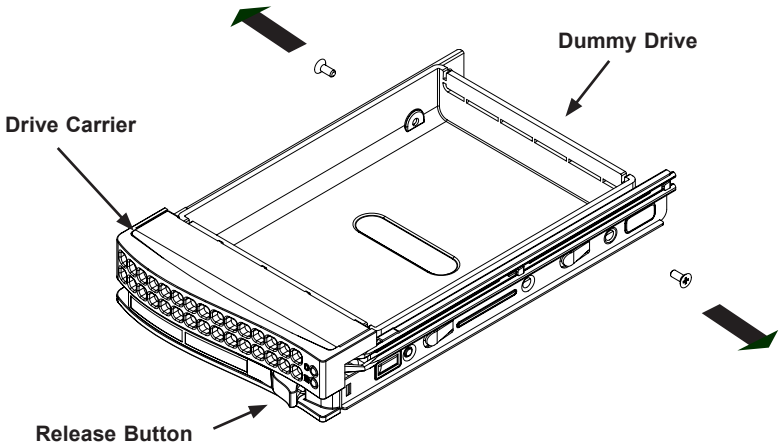


Figure 5-2: Removing Dummy Drive from Carrier

Installing a Hard Drive to the Hard Drive Carrier

Installing an Hard Drive

1. Remove the two screws securing the dummy drive to the drive carrier.

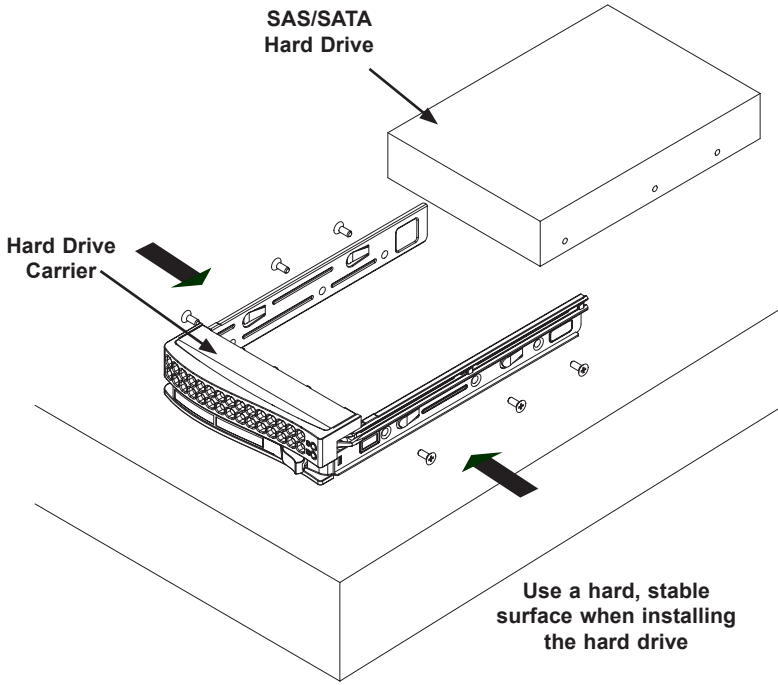


Figure 5-3: Installing a Hard Drive into a Hard Drive Carrier

2. Place the hard drive carrier on a flat, stable surface such as a desk, table, or work bench.

3. Slide the hard drive into the carruer with the printed circuit board side facing down.

4. Carefully align the mounting holes in the hard drive and the carrier. Make sure the bottom of the hard drive and bottom of the hard drive carrier are flush.

5. Secure the hard drive using all six screws.

6. Return the hard drive carrier into the chassis. Lock the hard drive carrier into the drive bay by closing the drive carrier handle until it clicks into the locked position.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com

5-5 Installing the Motherboard

Permanent and Optional Standoffs

Standoffs prevent short circuits by creating space between the motherboard and the chassis surface. The SC836 chassis includes permanent standoffs in locations used by most motherboards. These standoffs accept the rounded Phillips head screws included in the SC836 accessories packaging.

Some motherboard require additional screws for heatsinks, general components and/or non-standard securing within the chassis. Optional standoffs are included to these motherboards. To use an optional standoff, you must place it into the desired position in the chassis and secure it with a screw.

Standoffs Labeling

Standoff locations are labeled on the bottom of the SC836 chassis with the letters: P, D, and A.

P = Most compatible motherboards have a processor or CPU located here. If necessary, place standoffs here for the CPU's heatsink.

D = Place optional standoffs here if your motherboard requires additional posts to hold the unit in place.

A = A number of older motherboards have processors or CPUs located in areas designated "A". Place standoffs here for the CPU's heatsink.

Motherboard Installation

Installing the Motherboard

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Confirm that the power supply is disconnected and lay the chassis on a flat surface.

3. Open the chassis cover.

4. Remove any packaging from the chassis. If the rear fans (set of two fans nearest the I/O slots) or the air shroud are in place, remove them.

5. If required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this, place an optional hexagonal standoff into the chassis and secure it with a screw. Compare the holes in the motherboard to those in the chassis and add or remove standoffs as needed.

6. Lay the motherboard in the chassis, aligning the permanent and optional standoffs.

7. Secure the motherboard to the chassis using the rounded, Phillips head screws. Do not exceed eight pounds of torque per square inch when tightening down the motherboard.

8. Secure the CPU(s) and heatsinks to the motherboard.

Power Supply Connections

Connect each of the following cables, as required, by your motherboard manufacturer. In some instances, some cables may not need to be connected.

Power Supply Cables			
Name	**Number**	**Connects to:**	**Description**
20-pin or 24-pin power cable	1	Motherboard	20-pin or 24-pin power cable provides electricity to the motherboard. Has twenty to twenty-four yellow, black, gray, red, orange, green and blue wires.
HDD (Hard Drive) power cable	3	Backplane	Each cable has three connectors (two Hard Drive [HDD] Attach the HDD connectors to the backplane. .
8-pin motherboard cable	1	Motherboard	Provides power to the motherboard CPU. This cable has two black and two yellow wires.
4-pin motherboard cable	1	Motherboard	Provides power to PCI expansion card. This cable has two black and two yellow wires.
5-pin SMBus power cable (small)	1	Motherboard	Allows the SM (System Management) bus to monitor the power supply
2-pin INT cable	1	Motherboard	The intrusion detection cable allows the system to log when the server chassis has been opened.

I/O Shield and Expansion Card Setup

The SC836 chassis includes space for an I/O shield and up to seven expansion cards can be installed in the PCI card slots.

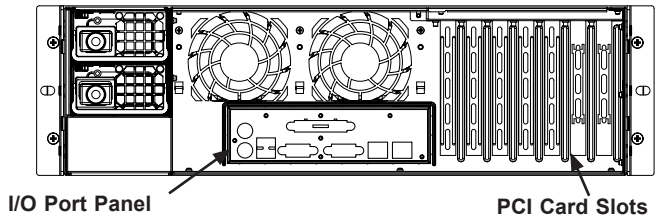


Figure 5-4: SC836 Chassis Rear PCI Card Slots and I/O Ports

Installing an I/O Panel

Installing the I/O Panel

1. Remove the chassis cover.
2. Locate the I/O port panel.
3. Depending on your motherboard, you must remove the existing port shield and replace with the new one or use the existing the shield to slide the ports through.
4. Connect the port panel to the motherboard following the motherboard documentation.

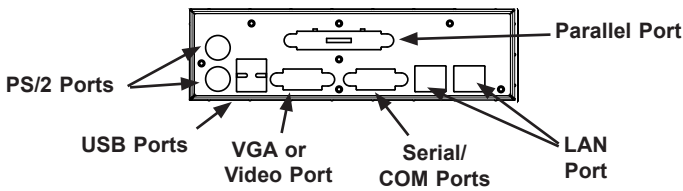


Figure 5-5: SC836 Chassis Port Panel

Installing an Expansion Card

Installing Expansion Cards

1. Remove the chassis cover.

2. Locate the motherboard port aligned with the PCI card slot where the expansion card will be installed.

3. Each PCI slot cover is secured by one screw located on the top (inside) the chassis. Remove this screw.

4. Remove the PCI slot cover by sliding it upward.

5. Gently slide the expansion card into the correct motherboard slot. If the expansion card requires a riser card, install it at this time. Slide the card into the PCI slot and close the latch. Never force a component into a motherboard or the chassis.

6. Secure the expansion card with the screw from the I/O panel.

5-6 Installing the Air Shroud, Rear Fan, and Checking Airflow

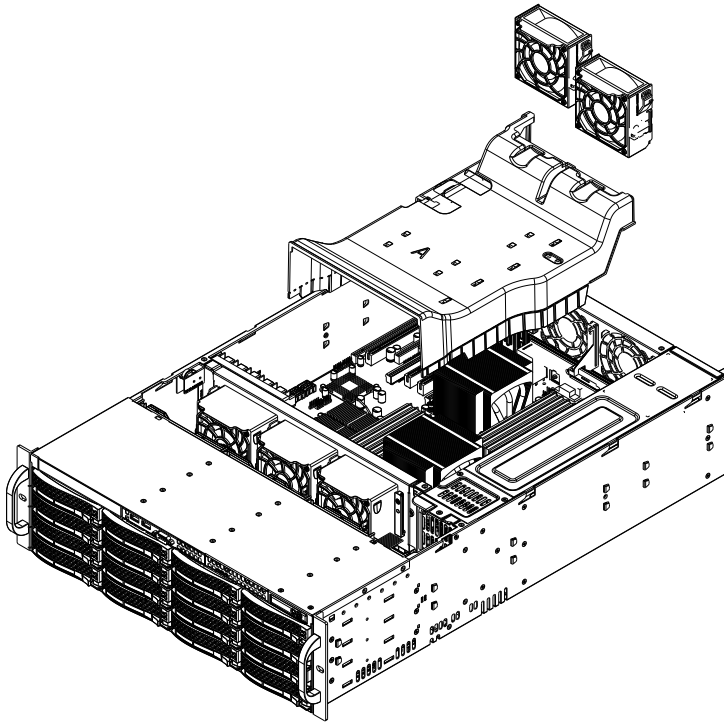


Figure 5-6: Place the Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. The SC836 chassis air shroud does not require screws to set it up.

Installing the Air Shroud

Air Shroud Installation

1. Remove the chassis cover. If necessary, remove the rear fans.

2. Place the air shroud in the chassis, as illustrated. The shroud aligns with the fan holders and sits behind two of the front fans covers two of the rear fans. Make sure the air shroud is properly aligned inside the chassis.

Installing Rear System Fans

The SC836 chassis includes three front fans and two rear fans. The front fans are pre-installed. The rear fans must be installed after motherboard and air shroud are installed.

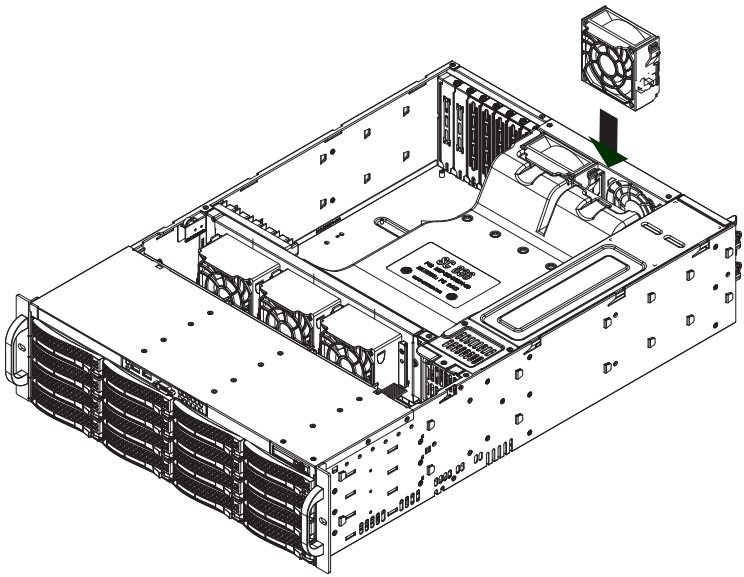


Figure 5-7: Install the Rear Fan

Installing Rear Fans

1. Confirm that the air shroud is correctly placed.

2. Slide the rear fan into the slot as illustrated. The fan release tab should be on the side closest to the power supply.

3. Make sure that the fan is secure in the fan housing and the housing is correctly connected to the power supply.

Checking the Server's Air Flow

Checking the Air Flow

1. Make sure there are no objects to obstruct airflow in and out of the server. If necessary, route the cables through the cable rack.

2. Do not operate the server without drives or drive trays in the drive bays.

3. Use only recommended server parts.

4. Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

5. Do not operate the server for extended periods of time without the air shroud in the proper place.

5-7 Chassis Maintenance

Replacing a System Fans

Five heavy duty fans provide cooling for the chassis. These fans circulate air through the chassis as a means of lowering the chassis' internal temperature. The SC836 chassis includes three front fans and two rear fans.

SC836 chassis fans are fully hot-swappable. In other words, fans may be removed and replaced without having to power-down the server.

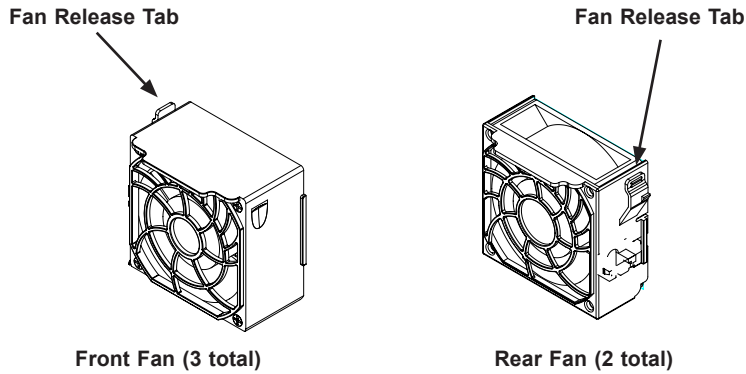


Figure 5-8: Chassis Fans

Replacing Fans

1. Open the chassis and locate the faulty fan. Never run the server for an extended period of time with the chassis open.

2. Press the release tab on the fan and pull the fan upward.

3. Slide the new fan into the fan housing. Make sure the power connectors are correctly aligned. The new fan will activate immediately.

Replacing the Power Supply

The power supply for the SC836 chassis is redundant and hot-swappable, meaning the power supply can be changed without powering down the system.

Replacing a Power Supply Module

1. The SC836 chassis includes a redundant power supply (at least two power modules), you can leave the server running if you remove only one power supply at a time.
2. Unplug the power supply that you will replace.
3. Push the release tab (on the back of the power supply) as illustrated.
4. Pull the power supply out using the handle provided.
5. Replace the failed power module with the same model.
6. Push the new power supply module into the power bay until you hear a click.
7. Plug the AC power cord back into the module and power up the server.

Replacing the Power Distributor

Redundant server chassis that are 2U or more in height require a power distributor. The power distributor provides failover and power supply redundancy. In the unlikely event that the power distributor requires replacement, do following:

Power Distributor Replacement

1. Power-down the server and remove the cord from the wall socket or power strip.
2. Remove all cable connections from the power supply to the motherboard, backplane, and other components. Also, remove both power supplies from the chassis.
3. Locate the power distributor between the power supply and the fan row.
4. Remove the three screws securing the power supply.
5. Gently pull the power distributor from the chassis. Make sure to guide all the cables through the power distributor housing.
6. Slide the new power distributor module into the power distributor housing. Make that you slide the cables through the bottom of the housing.
7. Reconnect all the power cables, replace the power supply, and plug the power supply cord into the wall.

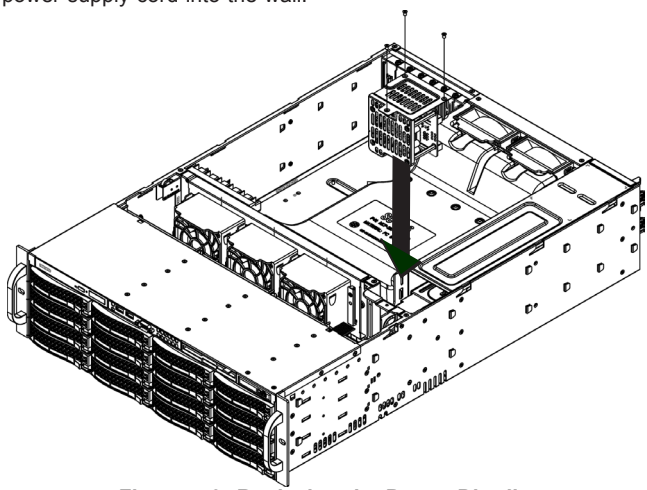


Figure 5-9: Replacing the Power Distributor

Replacing the Front Panel

SC836 chassis models include a slim DVD-ROM, a drive bay for an optional peripheral drive and front port panel. Use the instructions in this section in the unlikely event that you must replace any of these components.

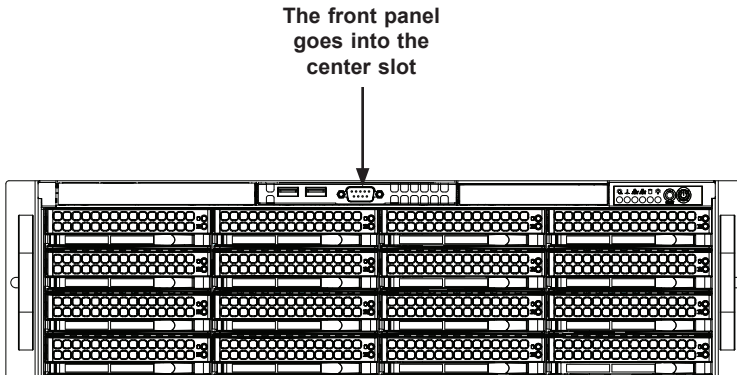


Figure 5-10: Installing the DVD-ROM, Optional Peripheral Drive and Front Panel

Replacing or Installing the Front Port Panel

Installing the Front Panel

1. Power-down the system and unplug the power cord.
2. Remove the chassis cover.
3. **(If you are not installing a new front port panel)** Remove the mini-bezel (grate) from the drive bay The mini-bezel is the small grating that covers the drive bay. Remove this by simply pulling it out of the bay.
   (If you are installing a new front port panel) Remove the old front port panel by depressing the release tab, then pulling the front port panel out of the chassis.
4. Insert the new unit in the slot until the tab locks into place.
5. Connect the data and power cables to the backplane and, if necessary, motherboard.
6. For more information, see the manual for your backplane in the appendix.

Notes

Chapter 6

Advanced Setup

6-1 Overview

This chapter covers the steps required to take advantage of the dual port, failover, and cascading features available with the SAS-836EL series backplanes.

If you are not using a SAS-836EL series backplane or you do not want to take advantage of the advanced features, you may skip this chapter

Specific examples and cascading instructions can be found in the backplane appendices of this manual

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

6-2 Dual Port and Expanders

Single Ports

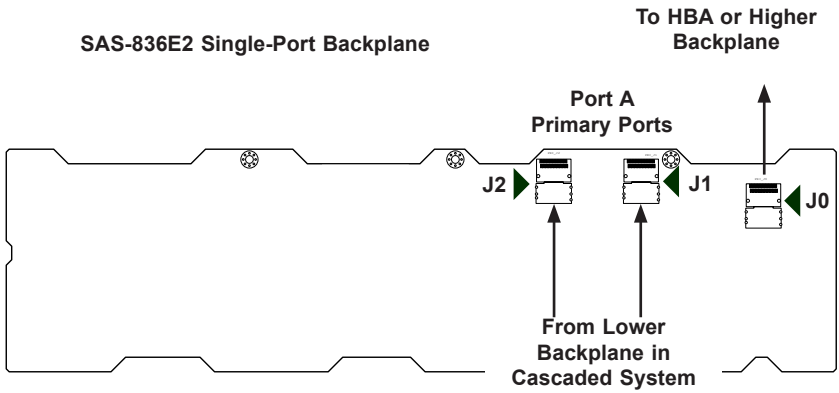
SAS-836EL1 backplanes have a single-port expander that accesses all sixteen drives and supports cascading.

Dual Ports

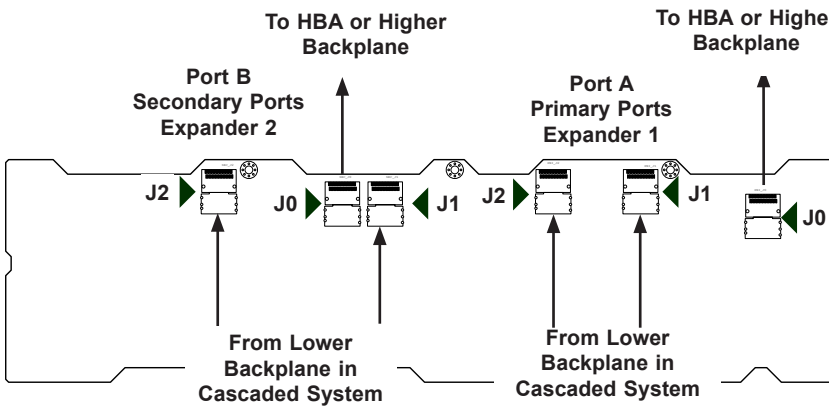
SAS-836EL2 backplanes have dual-port expanders that access all sixteen drives. These dual-port expanders supports cascading, failover and recovery.

Note: Both 836EL series backplanes support SAS drives only.

SAS-836E2 Single-Port Backplane



SAS-836E2 Dual-Port Backplane



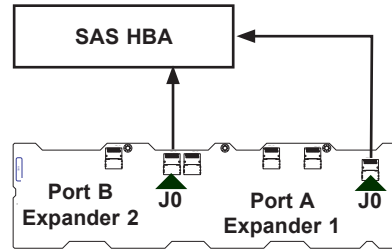
6-3 Failover

Failover is the ability to automatically switch to a redundant path when a primary path fails or becomes unavailable. Failover is automatic and requires no action on the part of the administrator.

The SAS-836EL2 backplane has two expanders which allow effective failover and recovery. This feature is not supported by the SAS-836EL1 backplane.

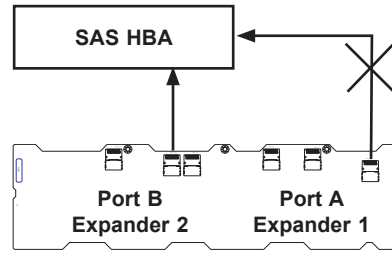
Single Host Bus Adapter

In a single host bus configuration, the backplane connects to one host bus adapter.



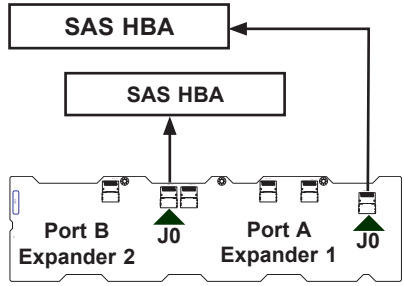
Single Host Bus Adapter Failover

If the expander or data path in Port A fails, the system will automatically fail over to Port B.



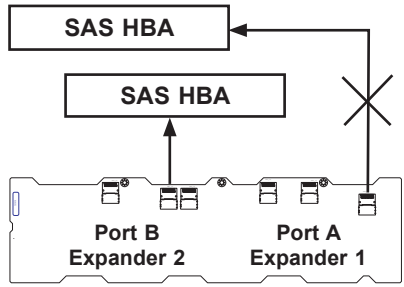
Dual Host Bus Adapter

In a dual host bus configuration, the backplane connects to two HBAs.



Dual Host Bus Adapter Failover

If the expander or data path in Port A fails, the system will automatically fail over to Port B. This maintains a full connection to all drives.



6-4 Cascading Backplanes

The SC836 chassis supports cascading when coupled with a SAS-836EL series backplane or other Supermicro backplane with expander capabilities.

Power Control Card

In a cascaded configuration, backplanes can be linked to create "Just a Bunch of Drives" or JBOD. The primary server requires a host bus adapter or motherboard. The other servers require a control card or power card.

Appendix A

SC836 Chassis Cables

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC836 Chassis (SAS/SATA)

SC836TQ-800			
Part #	**Type**	**Length**	**Description**
CBL-0087	Ribbon, Round	20"	16-pin to 16-pin ribbon cable for control panel
CBL-0179L	Cable	70 mm	SATA cable
-	Cable	6'	Regional power cord
CBL-0180L-01	SATA	various	Set of four SATA cables. length varied to minimize airflow interference.
CBL-0139L	Wire	45 cm	IDE 80-wire cable for DVD-ROM

SC836E-800			
Part #	**Type**	**Length**	**Description**
CBL-0087	Ribbon, Round	20"	16-pin to 16 pin ribbon cable for control panel
CBL-0179L	Cable	70 mm	SATA cable
-	Cable	6'	Regional power cord
CBL-0139L	Wire	45 cm	IDE 80-wire cable for DVD-ROM

SC836A-1200			
Part #	**Type**	**Length**	**Description**
CBL-0087	Ribbon, Round	20"	16-pin to 16-pin ribbon cable for control panel

A-4 Compatible Cables

This section lists cables included with the SC836 chassis packages.

Alternate SAS Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32-pin) connector on one end and four SAS connectors (7 pins each) at the other. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one iPass (SFF-8087/Mini-SAS) connector (36-pin) at one end and four SAS connectors on the opposite end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cascading/JBOD SAS Cables

Use the following cables when setting up a cascading or JBOD system.

Cable Name: SAS Cable **Quantity:** varies by setup

Part #: CBL-0167L **Placement:** Internal cable
Ports: Single

Description: Internal cable. Connects the backplane to the host bus adapter or external port. Used in single port environments.

Cable Name: SAS Cable
Part #: CBL-0168L
Ports: Dual
Quantity: varies by setup
Placement: Internal cable

Description: Internal cascading cable. Connects the backplane to the host bus adapter or external port. Used in dual port environments.

Cable Name: SAS Cable
Part #: CBL-0166L
Ports: Single or Dual
Quantity: varies by setup
Placement: External cable

Description: External cascading cable. Connects ports between servers. With most connectors, use one cable for single port connections and two cables for dual port connections.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24-pin	CBL-0042	7.9” (20 cm)
20-pin	CBL-0059	7.9” (20 cm)
8-pin	CBL-0062	7.9” (20 cm)
4-pin	CBL-0060	7.9” (20 cm)

Front Panel to the Motherboard

The SC836 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard)**	**Cable Part #**
16-pin	16-pin	CBL- 049
16-pin	20-pin	CBL-0048
20-pin	20-pin	CBL-0047
16-pin	varies	CBL-0068

Notes

Appendix B

SC836 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

1200W (Redundant)	
AC Input	100 - 140V, 50 - 60Hz, 8 - 11.5 Amp 180 - 240V, 50 - 60Hz, 5.5 - 8 Amp
DC Output +12V	1000W, 83 Amp @ 100-140V 1200W, 100 Amp @ 180-240V 5Vsb: 4A
DC Output with PDB	+5V: 50 Amp +3.3V: 30 Amp -12V: 0.6 Amp
800W (Redundant)	
MFR Part #	PWS-801-1R
Rated AC Voltage	100 - 240V 50 - 60Hz 10A - 4 Amp
+5V standby	4 Amp
+12V	66 Amp
+5V	25 Amp
+3.3V	12 Amp
-12V	0.5 Amp

710W (Redundant)	
MFR Part #	PWS-711-1R
Rated DC Input Voltage	Voltage Range: -36 to -75V (24A-11A) Nominal Voltage: -48V
+5V standby	4 Amp
+12V	58 Amp
+5V	24 Amp
+3.3V	21 Amp
-12V	0.6 Amp

Appendix C

SC836EL Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4 Introduction to the SAS-836EL1/EL2 Backplane

The SAS-836EL1/EL2 backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects both SAS-836EL1/EL2 Revision 1.10, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

C-5 Front Connectors

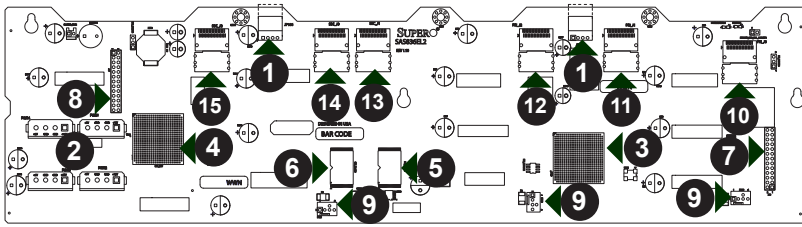


Figure C-1: SAS-836EL2 Backplane Rev. 1.1

Front Connectors

1. CD-ROM/Floppy Drive Power: JP105 and JP106
2. Power Connectors: PWR1, PWR2, PWR3, and PWR4
3. Primary Expander Chip
4. Secondary Expander Chip (EL2 backplane only)
5. Primary Flash Chip
6. Secondary Flash Chip (EL2 backplane only)
7. Primary EPP Connector: J16
8. Secondary EPP Connector: J17 (EL2 backplane only)
9. Fan Connectors: Fan1, Fan2, and Fan3
10. SAS Connectors: PRI_J0
11. SAS Connectors: PRI_J1
12. SAS Connectors: PRI_J2
13. SAS Connectors: SEC_J1 (EL2 backplane only)
14. SAS Connectors: SEC_J0 (EL2 backplane only)
15. SAS Connectors: SEC_J2 (EL2 backplane only)

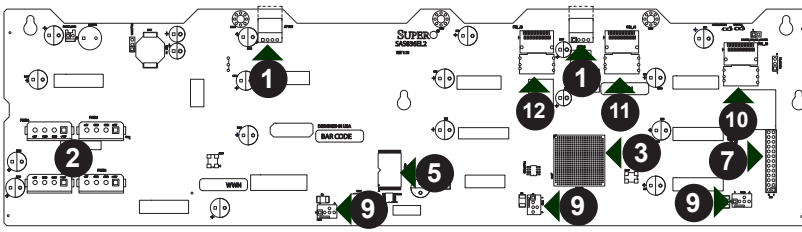


Figure C-2: SAS-836EL1 Backplane Rev. 1.1

C-6 Front Connector and Pin Definitions Rev 1.10

1. CD-ROM/Floppy 4-Pin Connectors

The 4-pin connectors, designated JP105 and JP106, provide power to the CD-ROM and floppy drives. See the table on the right for pin definitions.

CD-ROM/ FDD Power 4-Pin Connector

Pin#	Definition
1	+5V
2 and 3	Ground
4	+12V

2. Backplane Main Power Connectors

The 4-pin connectors, designated PWR1, PWR2, PWR3, and PWR4, provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

3. and 4. Primary and Secondary Expander Chips

The primary and secondary expander chips allow the backplane to support dual ports, cascading and failover.

5. and 6. Primary and Secondary Flash Chips

The primary and secondary flash chips enhance the backplane memory.

7. and 8. EPP Ports

The EPP ports are used for manufacturer's diagnostic purposes only.

9. Fan Connectors

The 3-pin connectors, designated Fan1, Fan2, and Fan3 provide power to the fans. See the table on the right for pin definitions.

Fan Connectors	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer

10.-15. SAS Ports

Note that the primary and secondary sets of SAS ports are in different order. From right to left the ports are Primary 0, 1, 2 and Secondary 1, 0, 2.

C-7 Jumper Locations and Pin Definitions

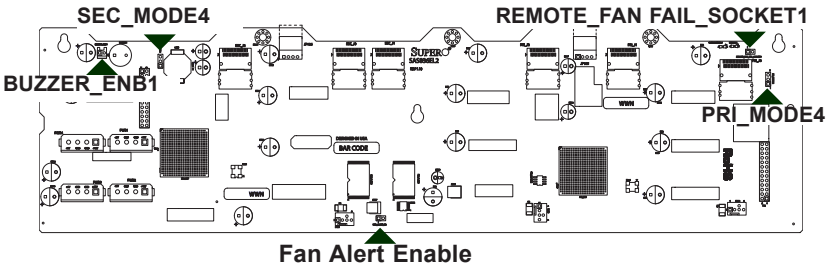
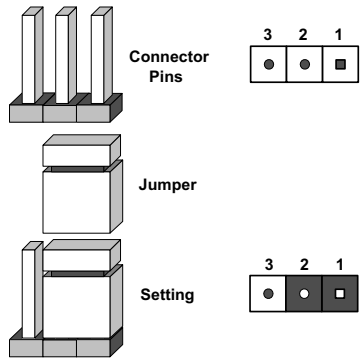


Figure C-3: Jumper Settings SAS-836EL1/EL2 Backplane Rev. 1.1

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
PRI_MODE4	1-2	Factory setting Do not change
SEC_MODE4	1-2	Factory setting Do not change
BUZZER_ENB1	Open: Disable Closed: Enable	Buzzer enable
FAN_ALERT_ENI	Open: Disable Closed: Enable	Fan alert enable

Socket Settings		
Socket	**Socket Setting**	**Note**
REMOTE_FAN_FAIL_ SOCKET1	Open: Disable Closed: Enable	Front panel fan fail indicator (Optional)

C-8 LED Indicators

Front LED Indicators

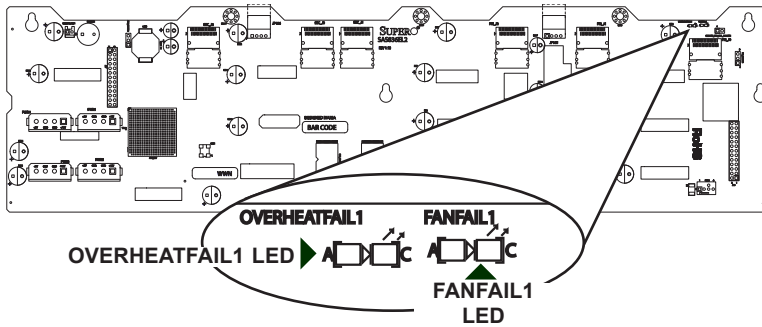


Figure C-4: Front LED Indicators SAS-836EL1/EL2 Rev. 1.1

Backplane LEDs		
LED	**State**	**Specification**
OVERHEATFAIL1	On	Overheat or drive failure
FANFAIL1	On	Failure in system fans

Rear LED Indicators

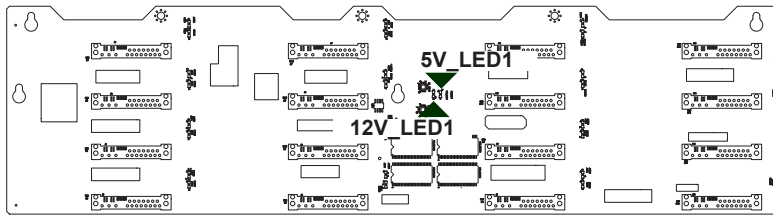


Figure C-5: Rear LED Indicators SAS-836EL1/EL2 Rev. 1.1

Backplane LEDs		
LED	**State**	**Specification**
5V_LED1	On	Blue LED light off indicates a backplane power failure. Light is on during normal operation.*
12V_LED1	On	Blue LED light off indicates a backplane power failure. Light is on during normal operation.*

* Some versions of the SAS-836EL1/EL2 backplane may not include 5V and 12V LED indicators

C-9 Rear Connectors and LED Indicators

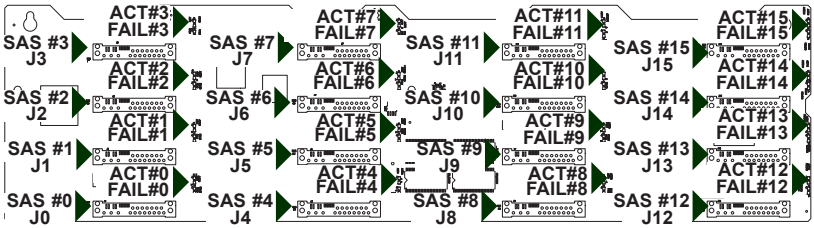


Figure C-6: Rear Connectors and LED Indicators

Rear HDD Connectors and LED Indicators			
Rear Connector	**Designation**	**Activity LED**	**Failure LED**
SAS #0	J0	ACT #0	FAIL #0
SAS #1	J1	ACT #1	FAIL #1
SAS #2	J2	ACT #2	FAIL #2
SAS #3	J3	ACT #3	FAIL #3
SAS #4	J4	ACT #4	FAIL #4
SAS #5	J5	ACT #5	FAIL #5
SAS #6	J6	ACT #6	FAIL #6
SAS #7	J7	ACT #7	FAIL #7
SAS #8	J8	ACT #8	FAIL #8
SAS #9	J9	ACT #9	FAIL #9
SAS #10	J10	ACT #10	FAIL #10
SAS #11	J11	ACT #11	FAIL #11
SAS #12	J12	ACT #12	FAIL #12
SAS #13	J13	ACT #13	FAIL #13
SAS #14	J14	ACT #14	FAIL #14
SAS #15	J15	ACT #15	FAIL #15

C-10 Single/Dual Ports and Cascading Configurations

The following sections contain information on single and dual ports and on cascading configurations.

C-11 Single and Dual Port Expanders

Single Ports

SAS-836EL1 backplanes have a single-port expander that accesses all sixteen drives and supports cascading.

Dual Ports

SAS-836EL2 backplanes have dual-port expanders that accesses all sixteen drives. These dual-port expanders support cascading, failover, and recovery.

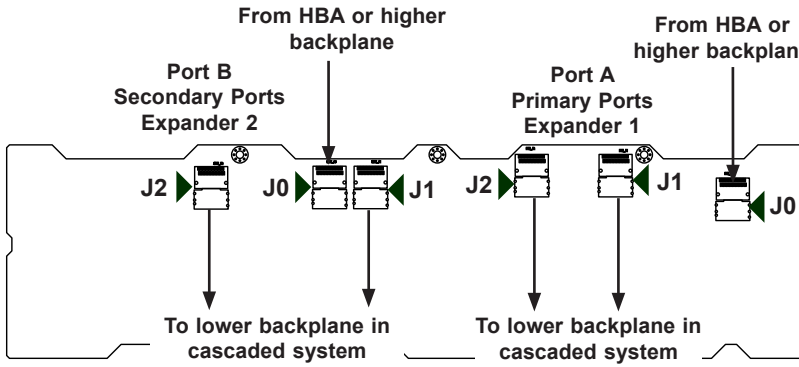


Figure C-7: SAS-836EL2 Dual Port Configuration

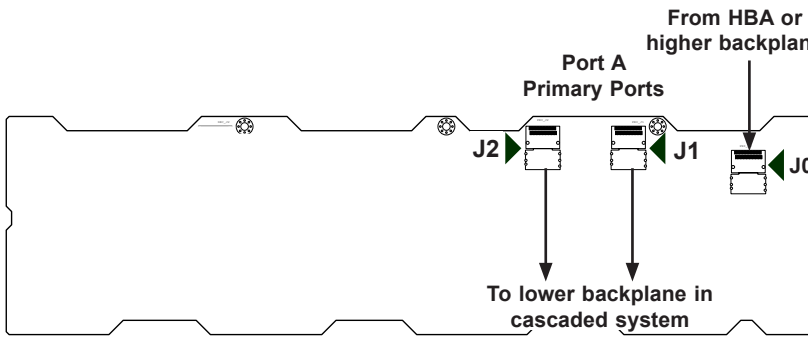


Figure C-8: SAS-836EL1 Single Port Configuration

C-12 Failover

The SAS-836EL2 backplane has two expanders which allow effective failover and recovery.

Single Host Bus Adapter

In a single host bus configuration, the backplane connects to one HBA.

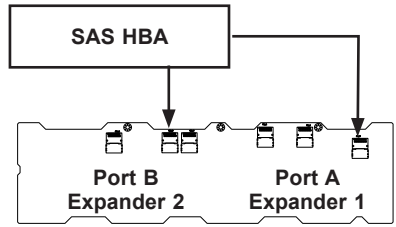


Figure C-9: Single HBA

Single Host Bus Adapter Failover

If the expander or data path in Port A fails, the system automatically switches to Port B.

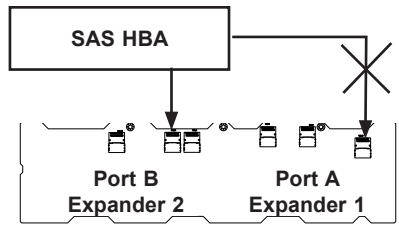


Figure C-10: Single HBA Failover

C-13 Failover with RAID Cards and Multiple HBAs

The SAS-836EL backplane may be configured for failover with multiple HBAs using either RAID controllers or HBAs to acheive failover protection.

RAID Controllers: If RAID controllers are used, then the failover is accomplished through port failover on the same RAID card.

HBAs: If multiple HBAs are used to achieve failover protection and load balancing, **Linux MPIO software must be installed and correctly configured to perform the load balancing and failover tasks.**

Dual Host Bus Adapter

In a dual host bus configuration, the backplane connects to two HBAs.

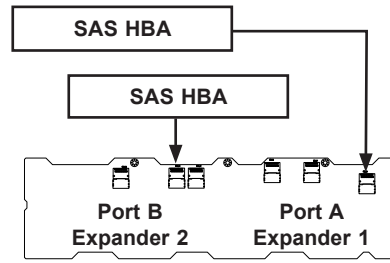


Figure C-11: Dual HBA

Dual Host Bus Adapter Failover

If the expander or data path in Port A fails, the system automatically switches to Port B. This maintains a full connection to all drives.

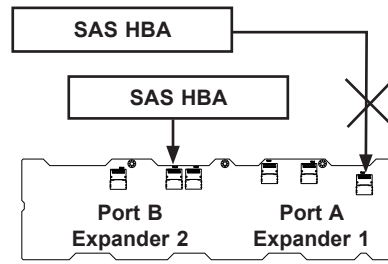


Figure C-12: Dual HBA Failover

IMPORTANT: For RAID controllers, redundancy is achieved through port failover. For multiple HBAs, MPIO software is required to achieve failover protection.

C-14 Cables and Chassis Power Card

Chassis Power Card

In a cascaded configuration, the first chassis includes a motherboard and at least one host bus adapter. Other servers in this enclosed system include a power card. This section describes the supported power card for the SAS-836EL series backplane.

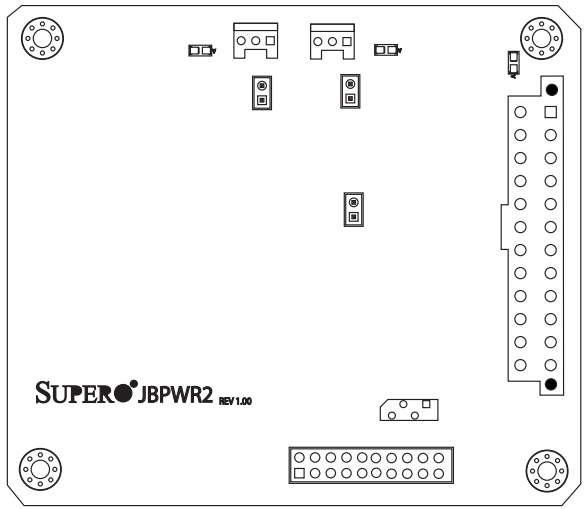


Figure C-13: Chassis Power Card (Sold Separately)

Power Card		
Part Number	**Part Type**	**Where Used**
CSE-PTJBOD-CB1	Power Card	Allows the chassis to be in a JBOD (Just a Bunch of Drives) system.

Connecting an Internal Host Bus Adapter to the Backplane

The following section lists the most common cables used to connect the HBA to the backplane.

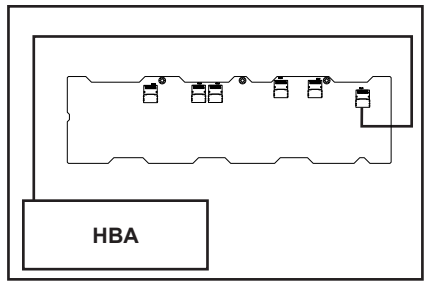


Figure 3-8: Single Internal Host Bus Adapter

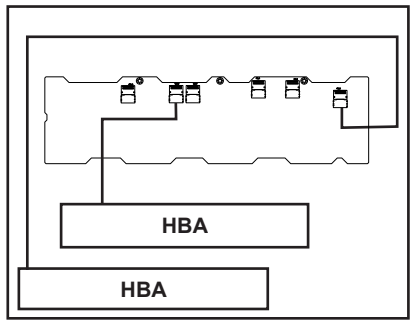


Figure C-14: Dual Internal Host Bus Adapter

IMPORTANT: See Section C-13 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

Supported Internal HBA to Backplane Cables

Use the following listed cables to create connections between the internal HBA and SAS-836EL backplane. The cables required depend on the HBA connector.

Cable Name: iPass to 4-lane

Part #: CBL-0117 **Length:** 46 cm (18 inches)

Description: This cable has one SFF-8484 (32-pin) connector on one end and iPass (SFF-8087/Mini-SAS) connector (36-pin) at the other. This cable connects from the HBA to the SAS-836EL backplane.

Cable Name: iPass (Mini-SAS) to iPass (Mini-SAS)

Part #: CBL-0108L-02	**Length:** 39 cm (15 inches)
Part #: CBL-0109L-02	**Length:** 22 cm (9 inches)
Part #: CBL-0110L-02	**Length:** 18 cm (7 inches)

Description: This cable has an iPass (SFF-8087/Mini-SAS) connector (36-pin) at each end. It connects from the HBA to the SAS-836EL backplane.

Connecting Multiple Backplanes in a Single Channel Environment

This section describes the cables used when cascading from a single HBA. These connections use CBL-0167L internal cables and CBL-0166L external cables.

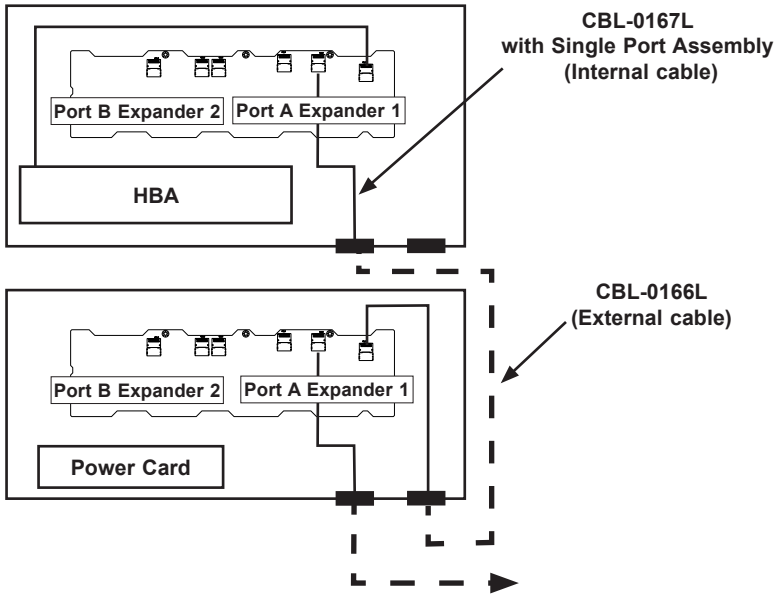


Figure C-15: Single HBA Configuration

Single HBA Configuration Cables

Single Port Cable Assembly

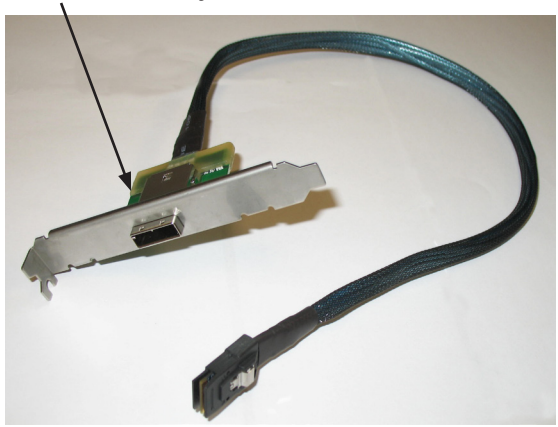


Figure C-15: Single Port Internal Cable (CBL-167L)

Cable Name: SAS EL2/EL1 Backplane Cable (Internal) with 2-port Cascading Cable, 68 cm

Part #: CBL-0167L (SFF-8087 to SFF-8088 x1)
Ports: Single
Placement: Internal cable

Description: Internal cable. Connects the backplane to the host bus adapter or external port. Used in single port environments.

Figure C-16: External Cable (CBL-166L)

Cable Name: SAS EL2/EL1 Cascading Cable (External), 68cm

Part #: CBL-0166L (SFF-8088 1x to SFF-8088 x1)
Ports: Single or Dual
Placement: External cable

Description: External cascading cable. Connects ports between servers. With most connectors, use one cable for single port connections and two cables for dual port connections.

Connecting Multiple Backplanes in a Dual Channel Environment

This section describes the cables used when cascading from dual HBAs. These connections use CBL-0167L internal cables and CBL-0166L external cables.

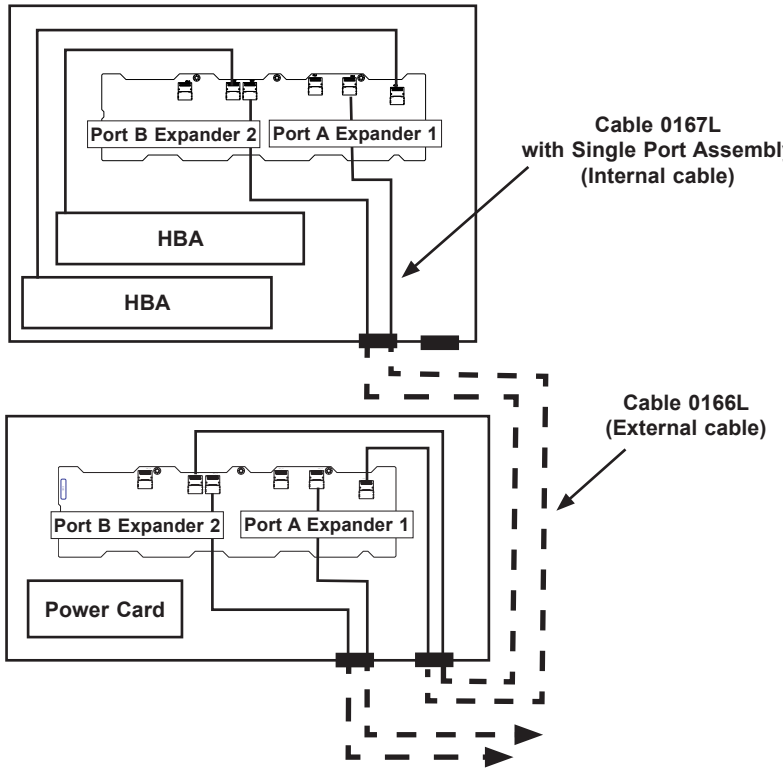


Figure C-17: Dual HBA Configuration

IMPORTANT: See Section C-13 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

C-16 Supported Cascading Configurations

Cascading allows the system to access data at a faster rate by allowing several backplanes to share resources to reduce latency time.

The first backplane in a cascaded system requires a motherboard and HBA. Other servers require a power control card with no motherboard and no HBA.

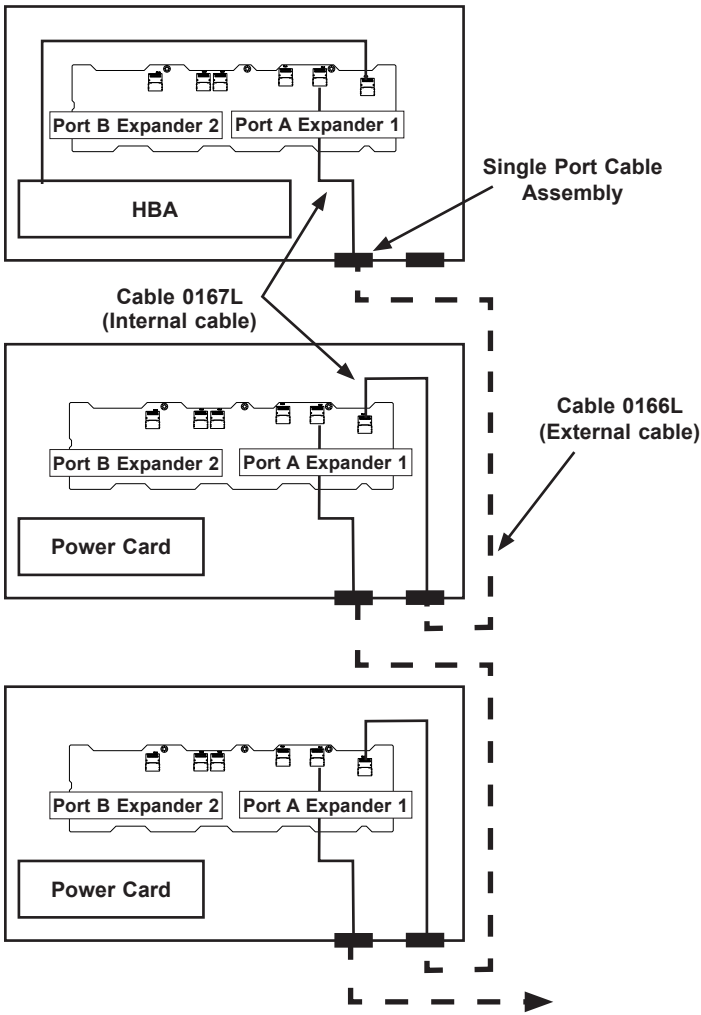


Figure C-18: Simple Cascaded Configuration

Server System with Single SAS HBA

The expanders allow horizontal branching. This configuration also applies to dual ports.

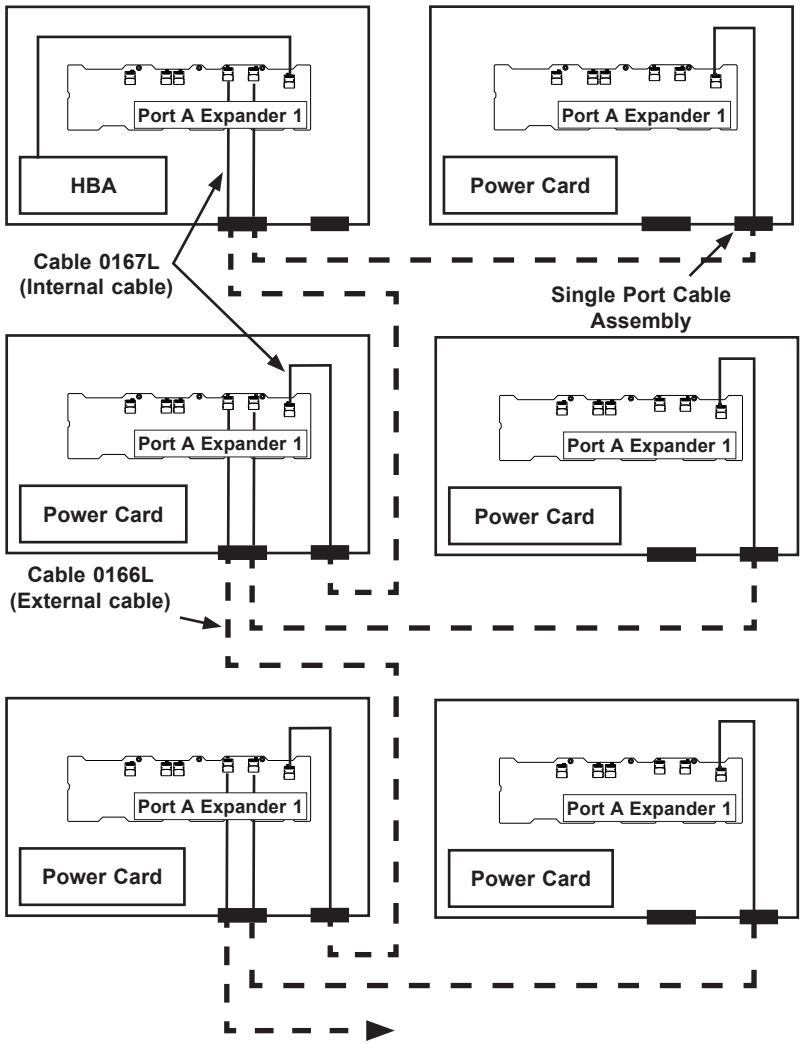


Figure C-19: Cascaded Configuration with Horizontal Branching

Dual SAS HBA and Cascaded Configuration

IMPORTANT: See Section 3-3 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

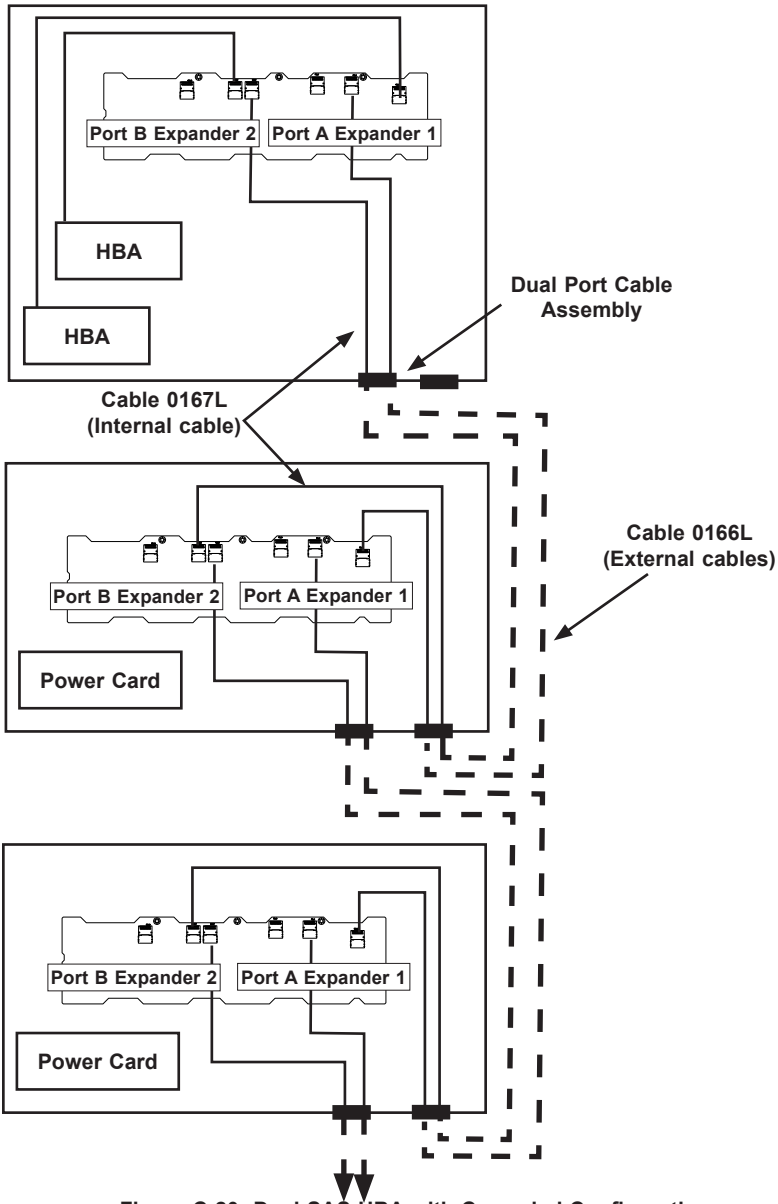


Figure C-20: Dual SAS HBA with Cascaded Configuration

Dual SAS HBA, Cascaded Configuration and Branching

IMPORTANT: See Section 3-3 of this manual, *Failover with RAID Cards and Multiple HBAs* for important information on supported configurations.

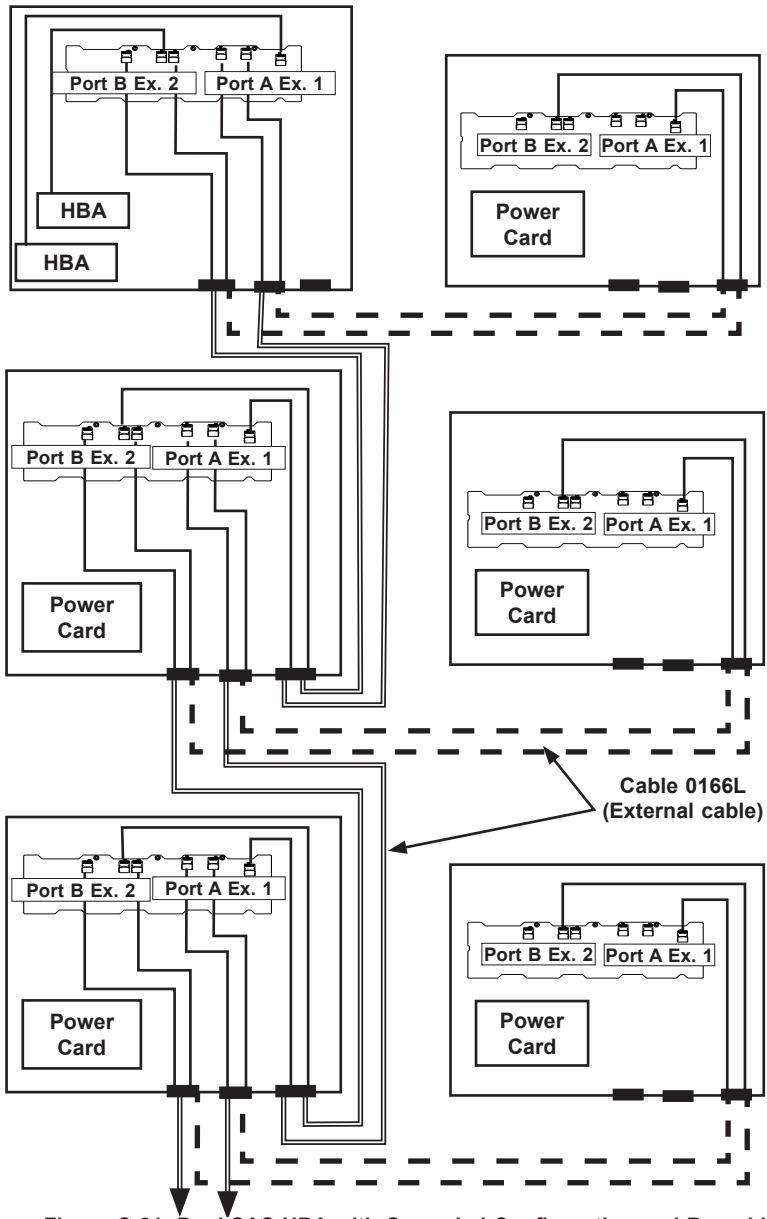


Figure C-21: Dual SAS HBA with Cascaded Configuration and Branching

Notes

Appendix D

SAS-836TQ Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

D-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

D-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including this backplane.
- Disconnect the power cable before installing or removing any cables from this backplane.
- Make sure that the this backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

D-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

D-4 Introduction to the SAS-836TQ Backplane

- The SAS-836TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.
- This manual reflects SAS-836TQ Revision 3.2, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

D-5 Front Connectors and Jumpers

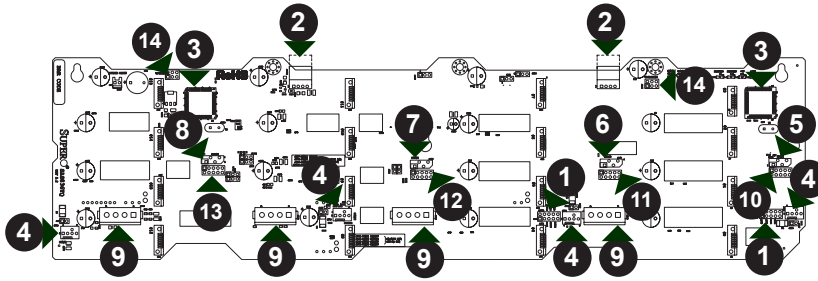


Figure D-1: Front Components

Front Connectors

#1. ACT_IN#0-15: JP26 and JP47
#2. DVD-ROM Drive Power: JP105 and JP106
#3. Chip: MG9072
#4. Fan Connectors: JP54, JP56, JP58 and JP60
#5. I²C Connector#1 JP37
#6. I²C Connector#2 JP95
#7. I²C Connector#3 JP52
#8. I²C Connector#4 JP96
#9. Power Connectors (4-pin): JP10, JP13, JP46, and JP48
#10. SideBand Connector#1 JP66
#11. SideBand Connector#2 JP68
#12. SideBand Connector#3 JP75
#13. SideBand Connector#4 JP77
#14. Upgrade Connectors: JP69 and JP78
#15. SAS Port #0 J5
#16. SAS Port #1 J6
#17. SAS Port #2 J7
#18. SAS Port #3 J8
#19. SAS Port #4 J10
#20. SAS Port #5 J12
#21. SAS Port #6 J14
#22. SAS Port #7 J16
#23. SAS Port #8 J22
#24. SAS Port #9 J23
#25. SAS Port #10 J24
#26. SAS Port #11 J25
#27. SAS Port #12 J26
#28. SAS Port #13 J29
#29. SAS Port #14 J30
#30. SAS Port #15 J32

SAS Ports

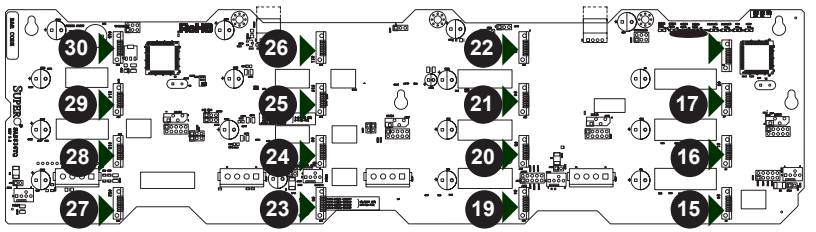


Figure D-2: SAS Ports

D-6 Front Connector and Pin Definitions

#1. Activity LED Header

The activity LED headers, designated JP26 and JP47, are used to indicate the activity status of each SAS drive. These activity LED headers are used by the host controller for the SATA drives that previously had no activity status output. If using a SAS drive, and for most SATA drives, these activity headers are not required.The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#8	6	ACT IN#12
2	ACT IN#9	7	ACT IN#13
3	ACT IN#10	8	ACT IN#14
4	ACT IN#11	9	ACT IN#15
5	Ground	10	Empty

#2. CD-ROM 4-Pin Connectors

The 4-pin connectors, designated JP105 and JP106, provide power to the CD-ROM drives. See the table on the right for pin definitions.

CD-ROM/ FDD Power 4-Pin Connector

Pin#	Definition
1	+5V
2 and 3	Ground
4	+12V

#3. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

#4. Fan Connectors

The 4-pin connectors, designated JP54, JP56, JP58 and JP60, provide power to the fans. See the table on the right for pin definitions. These 4-pin connectors are compatible with 3-pin and 4-pin fans.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	No connection

#5., #6., #7., #8. I²C Y-Cable Connectors

The I²C Y-cable connectors, designated JP37, JP52, JP95, and JP96, are for enclosure management of the I²C mode connection. These connectors are used only if the I²C is not embedded into the sideband connectors. See the table on the right for pin definitions.

I²C Y-Cable Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#9. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, and JP48, provide power to the backplane. See the table on the right for pin definitions. All four of these connectors must be used at the same time.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

#10., #11., #12., #13. Sideband Headers

The sideband headers are designated JP66, JP68, JP75 and JP77. are for enclosure management of the SGPIO mode connection. See the table to the right for pin definitions.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	1	Controller ID (SB6)
4	**SGPIO:** SDOUT **I²C:** Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	**SGPIO:** SLOAD **I²C:**SDA (SB1)
8	Backplane ID (SB7)	7	**SGPIO:** SCLOCK **I²C:**SCL (SB0)
10	No Connection	9	No Connection

#14. Upgrade Connectors

The upgrade connectors are designated JP69 (for U19) and JP78 (for U40). Upgrade connectors are for manufacturing use only.

#15-#30. SAS Ports

The SAS ports are used to connect the SAS drive cables. The 16 ports are designated #0 - #15. Each port is also compatible with SATA drives.

D-7 Front Jumper Locations and Pin Definitions

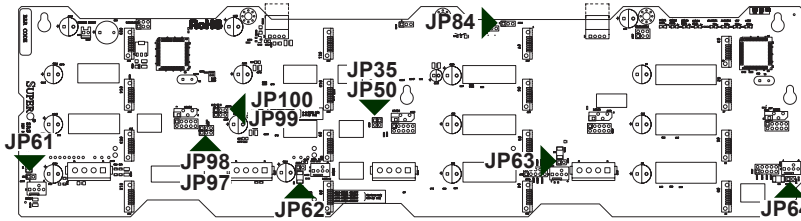
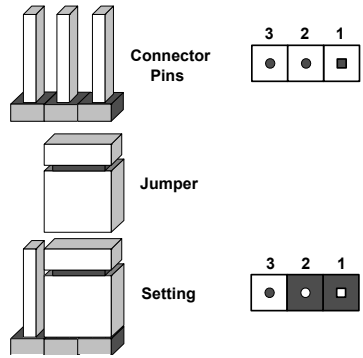


Figure D-2: Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.

Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	Open: Default Closed: Reset	9072 Chip Reset #1
JP50	Open: Default Closed: Reset	9072 Chip Reset #2

Fan Jumper Settings

The SAS-836TQ backplane can use up to four fans. To utilize each fan, you must configure both jumpers as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan (default) Open: No fan	Fan#1 enable/disable
JP54		Fan#1 connector
JP62	Closed: With fan (default) Open: No fan	Fan#2 enable/disable
JP56		Fan#2 connector
JP63	Closed: With fan (default) Open: No fan	Fan#3 enable/disable
JP58		Fan#3 connector
JP64	Closed: With fan (default) Open: No fan	Fan#4 enable/disable
JP60		Fan#4 onnector
JP97	1-2 With fan (default) 2-3 No fan	Fan #1 selection for MG907X Monitor
JP98	1-2 With fan (default) 2-3 No fan	Fan #2 selection for MG907X Monitor
JP99	1-2 With fan (default) 2-3 No fan	Fan #3 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #4 Sselection for MG907X Monitor

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your backplane to I²C mode.

SGPIO/I2C Settings		
Jumper	**SGPIO Setting**	**I²C Setting**
JP84	1-2 (default)	2-3

SAS Port Connections in I²C and SGPIO Settings

Use the following chart when connecting this backplane. If you connect the SAS ports out of order, you will not able to easily identify drives using the LED function.

SAS Port Connections in I²C and SGPIO Settings		
Port #	**I²C**	**SGPIO**
# 0 - 3	I²C #1	Sideband #1
# 4 - 7	I²C #2	Sideband #2
# 8 - 11	I²C #3	Sideband #3
# 12 - 15	I²C #4	Sideband #4

Front LED Indicators

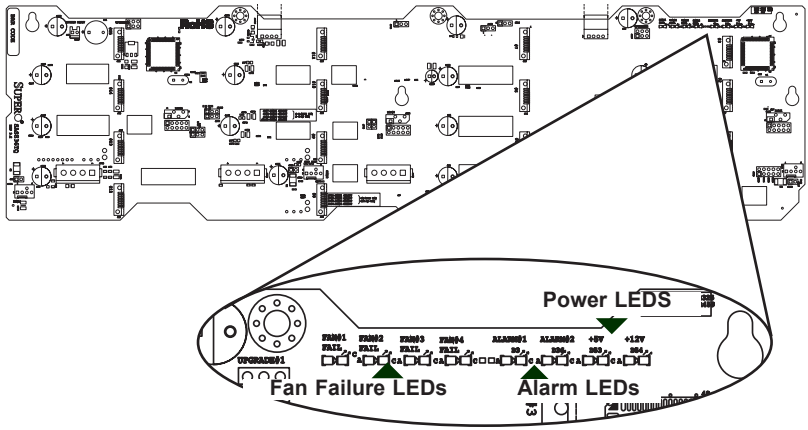
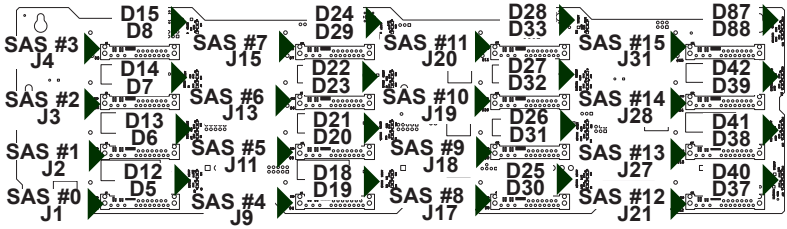


Figure D-3: Front LEDs

Front Pane LEDs		
LED	**State**	**Specification**
Fan #1 Fail	On	Failure in Fan #1
Fan #2 Fail	On	Failure in Fan #2
Fan #3 Fail	On	Failure in Fan #3
Fan #4 Fail	On	Failure in Fan #4
Alarm #1	On	Overheat/fan failure/drive failure in Channel 1
Alarm #2	On	Overheat/fan failure/drive failure in Channel 2
+5V	Off	Backplane power failure. Light is on during normal operation.
+12V	Off	Backplane power failure. Light is on during normal operation.

D-8 Rear Connectors and LED Indicators



Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #0	SAS/SATA HHD #0	SAS #8	SAS/SATA HHD #8
SAS #1	SAS/SATA HHD #1	SAS #9	SAS/SATA HHD #9
SAS #2	SAS/SATA HHD #2	SAS #10	SAS/SATA HHD #10
SAS #3	SAS/SATA HHD #3	SAS #11	SAS/SATA HHD #11
SAS #4	SAS/SATA HHD #4	SAS #12	SAS/SATA HHD #12
SAS #5	SAS/SATA HHD #5	SAS #13	SAS/SATA HHD #13
SAS #6	SAS/SATA HHD #6	SAS #14	SAS/SATA HHD #14
SAS #7	SAS/SATA HHD #7	SAS #15	SAS/SATA HHD #15

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D24	D29
SAS #8	D25	D30
SAS #9	D26	D31
SAS #10	D27	D32
SAS #11	D28	D33
SAS #12	D40	D37
SAS #13	D41	D38
SAS #14	D42	D39
SAS #15	D87	D88

Notes

Appendix E

SAS-836A Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

E-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle the backplane very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

E-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including this backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is installed properly and securely on the motherboard to prevent damage to the system due to power shortage.

E-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

E-4 Introduction to the SAS-836A Backplane

The SAS-836A backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-836A Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

E-5 Front Connectors and Jumpers

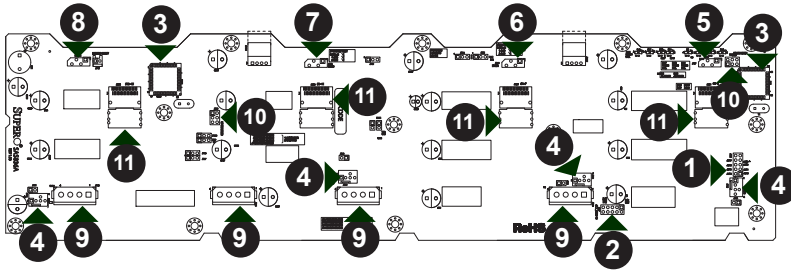


Figure E-1: Front Connectors

Front Connectors

#1. Activity LED Header ACT_IN#0-7: JP26
#2. Activity LED Header ACT_IN#8-15: JP47
#3. Chip: MG9072
#4. Fan Connectors: JP54, JP56, JP58 and JP60
#5. I²C Connector#1 JP37
#6. I²C Connector#2 JP95
#7. I²C Connector#3 JP52
#8. I²C Connector#4 JP96
#9. Power Connectors (4-pin): JP10, JP13, JP46, and JP48
#10. Upgrade Connectors: JP69 and JP78
#11. IPASS Connectors JSM1, JSM2, JSM3 and JSM4

E-6 Front Connector and Pin Definitions

#1 - #2. Activity LED Header

The activity LED headers, designated JP26 and JP47, are used to indicate the activity status of each SAS drive. These activity LED headers are used by the host controller for the SATA drives that previously had no activity status output. If using a SAS drive, and for most SATA drives, these activity headers are not required.The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#8	6	ACT IN#12
2	ACT IN#9	7	ACT IN#13
3	ACT IN#10	8	ACT IN#14
4	ACT IN#11	9	ACT IN#15
5	Ground	10	Empty

#3. MG9072 Chips

The MG9072 chips are enclosure management chips that support the SES-2 controller and SES-2 protocols.

#4. Fan Connectors

The 4-pin connectors, designated JP54, JP56, JP58 and JP60, provide power to the fans. See the table on the right for pin definitions. These 4-pin connectors are compatible with 3-pin and 4-pin fans.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	No connection

#5., #6., #7., #8. I²C Connectors

The I²C connectors, designated JP37, JP52, JP95, and JP96, are for enclosure management of the I²C mode connection. See the table on the right for pin definitions.

I²C Y-Cable Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#9. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46, and JP48, provide power to the backplane. See the table on the right for pin definitions. All four of these connectors must be used at the same time.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

#10. Upgrade Connectors

The upgrade connectors are designated JP69 (for U19) and JP78 (for U40). Upgrade connectors are for manufacturing use only.

E-7 Front Jumper Locations and Pin Definitions

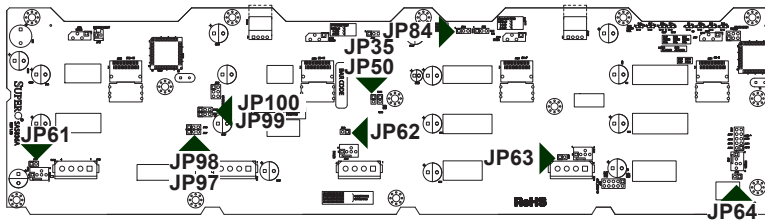
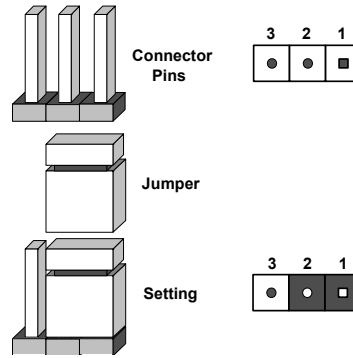


Figure E-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.

Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



General Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	Open: Default Closed: Reset	MG9072 chip reset #1
JP50	Open: Default Closed: Reset	MG9072 chip reset #2

Fan Jumper Settings

The SAS-836A backplane can use up to four fans. To utilize each fan, both jumpers must be configured as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan (default) Open: No fan	Fan#1 enable/disable
JP54		Fan#1 connector
JP62	Closed: With fan (default) Open: No fan	Fan#2 enable/disable
JP56		Fan#2 connector
JP63	Closed: With fan (default) Open: No fan	Fan#3 enable/disable
JP58		Fan#3 connector
JP64	Closed: With fan (default) Open: No fan	Fan#4 enable/disable
JP60		Fan#4 connector
JP97	1-2 With fan (default) 2-3 No fan	Fan #1 selection for MG907X Monitor
JP99	1-2 With fan (default) 2-3 No fan	Fan #2 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #3 selection for MG907X Monitor
JP100	1-2 With fan (default) 2-3 No fan	Fan #4 selection for MG907X Monitor

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your backplane to I²C mode.

SGPIO/I²C Setting		
Jumper	**SGPIO Jumper Setting**	**I²C Jumper Setting**
JP84	1-2 (default)	2-3

Front LED Indicators

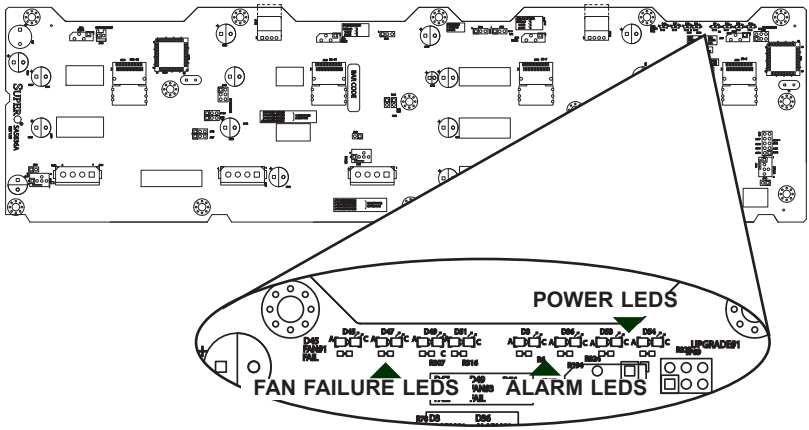


Figure E-3: Front LEDs

Front LEDs		
LED	**State**	**Specification**
Fan #1 Fail	On	Fan #1 failure
Fan #2 Fail	On	Fan #2 failure
Fan #3 Fail	On	Fan #3 failure
Fan #4 Fail	On	Fan #4 failure
Alarm #1	On	Overheat/fan failure/drive failure in Channel 1
Alarm #2	On	Overheat/fan failure/drive failure in Channel 2
+5V	Off	Backplane power failure. Light is on during normal operation.
+12V	Off	Backplane power failure. Light is on during normal operation.

E-8 Rear Connectors and LED Indicators

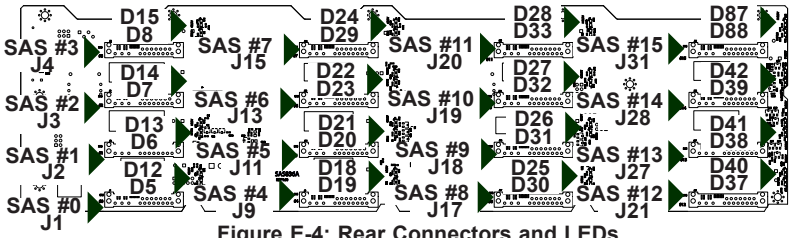


Figure E-4: Rear Connectors and LEDs

Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #0	SAS/SATA HDD #0	SAS #8	SAS/SATA HDD #8
SAS #1	SAS/SATA HDD #1	SAS #9	SAS/SATA HDD #9
SAS #2	SAS/SATA HDD #2	SAS #10	SAS/SATA HDD #10
SAS #3	SAS/SATA HDD #3	SAS #11	SAS/SATA HDD #11
SAS #4	SAS/SATA HDD #4	SAS #12	SAS/SATA HDD #12
SAS #5	SAS/SATA HDD #5	SAS #13	SAS/SATA HDD #13
SAS #6	SAS/SATA HDD #6	SAS #14	SAS/SATA HDD #14
SAS #7	SAS/SATA HDD #7	SAS #15	SAS/SATA HDD #15

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D24	D29
SAS #8	D25	D30
SAS #9	D26	D31
SAS #10	D27	D32
SAS #11	D28	D33
SAS #12	D40	D37
SAS #13	D41	D38
SAS #14	D42	D39
SAS #15	D87	D88

Notes

Appendix F

PCC-JBPWR2 and CSE-PTJBOD-CB1

Power Control Card Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

F-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

F-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer.
- Disconnect the power cable before installing or removing any cables from the card.
- Make sure that the card is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

F-3 An Important Note to Users

- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

F-4 Front Connectors

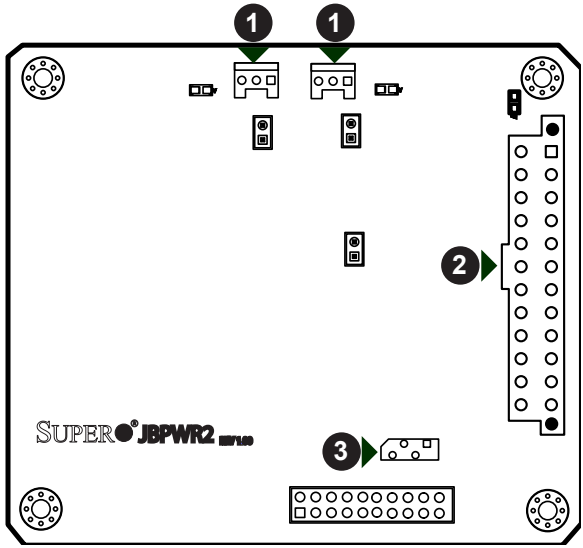


Figure F-1: Front Connectors

Front Connectors

#1. Fan1 and Fan2 connectors
#2. Power connector
#3. Power fault connector (MCU power on switch)

F-5 Front Connector and Pin Definitions

#1. Fan Connectors

The 3-pin connectors, designated Fan1 and Fan2, provide power to the fans.

Since the system will use the power card instead of a motherboard, two fans provide sufficient cooling for the server.

Fan Connectors	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer

#2. Main Power Connector

The 12-pin connector provides power to the card to be distributed to the chassis components.

#3. Power Fault Connector (MCU Power On Switch)

In normal operating mode, power is governed by the MCU (Micro Controller Unit). As a sercurity measure, the switch must be depressed for at least four seconds to power down the system.

In the case of an unexpeceted loss of power, the MCU will return the system to the power state it was in at the time when power was lost.

Power Fault Connector (MCU Power On Switch)	
Pin#	Definition
1	Power Fault #1
2	Power Fault #2
3	Power Fault #3
4	Reserved

#4. LED and Switch Connector

The LED Header and Switch Connector, designated JF1, is cabled directly to the front panel. This allows the front panel to display system status.

LED and Switch Connector			
Pin #	Definition	Pin #	Definition
1	Power	2	Ground
3	Reset	4	Ground
5	Vcc	6	Power Fail LED
7	Vcc	8	OH/Fan Fail LED
9	Vcc	10	NIC2
11	Vcc	12	NIC1
13	Vcc	14	HDD LED
15	Vcc	16	Power LED
17	x (Key)	18	x (Key)
19	NMI	20	Ground

F-6 Front Jumper Locations and Pin Definitions

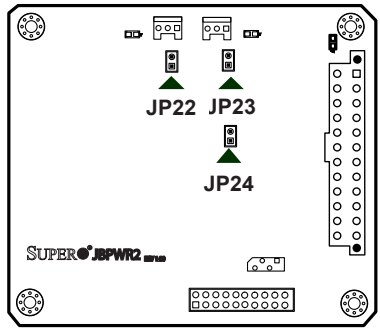
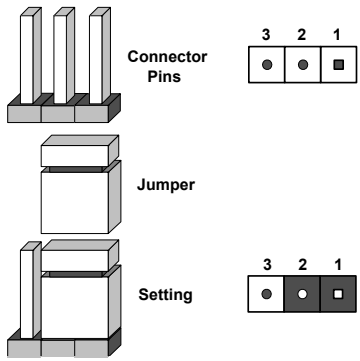


Figure F-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP22	Closed: Enabled Open: Disabled	Fan1
JP23	Closed: Enabled Open: Disabled	Fan2
JP24	Closed: Enabled Open: Disabled	Buzzer*

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

F-7 LED Indicators

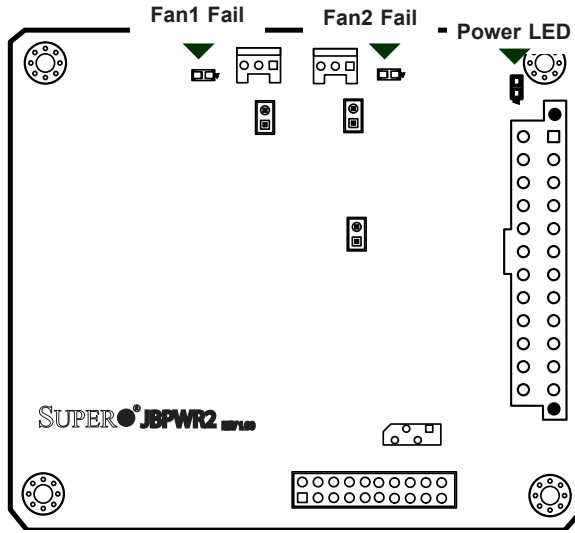


Figure F-3: LEDs

Front LEDs		
LED	**State**	**Specification**
Power LED	On	Activity in Power Control Board
Fan1 Fail	On	Failure in Fan 1
Fan2 Fail	On	Failure in Fan 2

F-8 Power Card Placement

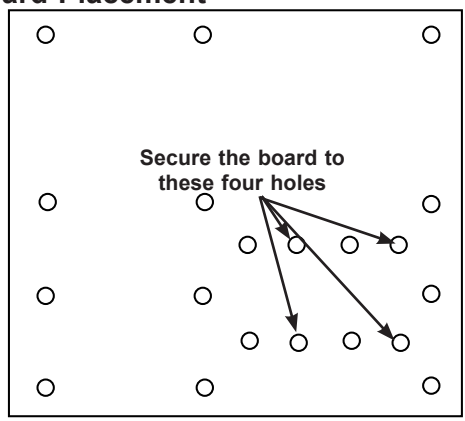


Figure F-4: Fastening the Power Card

Appendix G

SC836B Chassis Specifications

F-1 Overview

This appendix provides assembly instructions specific to SC836B model chassis only.

F-2 Revisions to the Data in this Appendix

Content Revision History		
Date	**Revision**	**Changes**
12/29/11	1.0	Initial revision

F-3 Installation Instructions for SC836B Models

The SC836B model chassis is specially designed with two peripheral drive bays located in the rear of the chassis. For information on which drives are compatible with the SC836B contact Supermicro's Technical Support department at www.supermicro.com.

F-4 Installing a 2.5" Rear Hard Drives

Identifying the Hard Drive Components

Use the photograph below to identify the components which are required to install hard drives into the rear peripheral bay of the SC836B chassis:

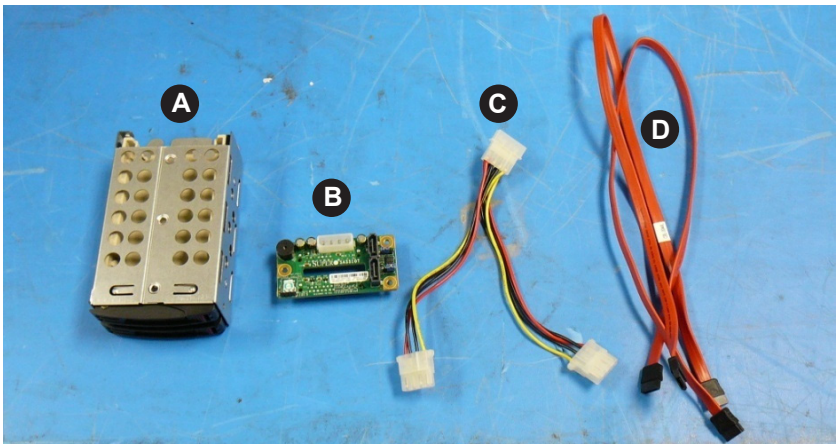


Figure F-1: SC836B DVD-ROM Components

Rear Hard Drive Components

A. Hard drive cage

B. Hard drive cage backplane

C. Y-cable for a 4-pin hard drive (CBL-0234L)

D. Two SATA cables (CBL-0179L)

Installing Hard Drives into the Rear Hard Drive Carrier

Installing the Rear Hard Drive Cage

1. Disconnect the power from the chassis by unplugging the power cord.

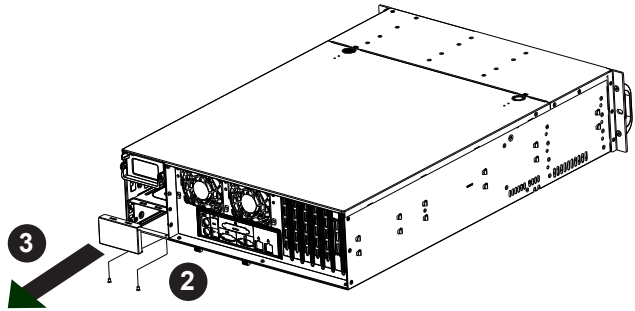


Figure F-2: Removing the Dummy Drive from the Hard Drive Bay

2. Remove the screws securing the dummy cover into the rear peripheral drive bay. These screws are located on the underside of the chassis on the left-hand side.

3. Pull the dummy drive out of the hard drive bay.

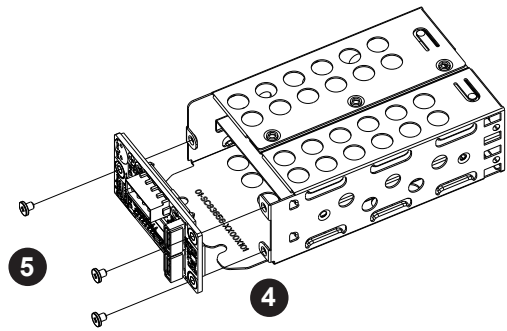


Figure F-3: Securing the Backplane to the hard drive cage

4. Align the mounting holes in the hard drive cage backplane with those in the rear of the hard drive cage.

5. Secure the backplane to the rear of the hard drive cage using three screws.

6. Connect the Y-cable to the two ports on the righthand side of the backplane.

7. Connect the SATA cable to the SATA port on the top of the backplane.

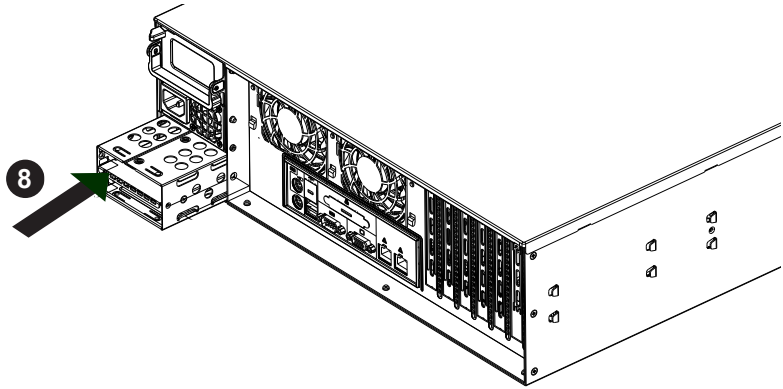


Figure F-4: Installing the Hard Drive Cage into the Rear Hard Drive Bay

8. Insert the hard drive cage into the rear hard drive bay of the chassis and slide it all the way back, aligning the grooves in the bottom plate of the hard drive

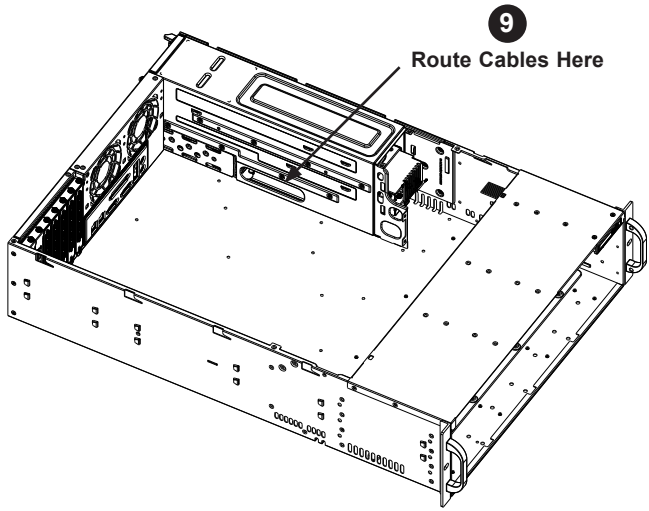


Figure F-5: Routing the Cables

cage with the upright posts inside the hard drive bay.

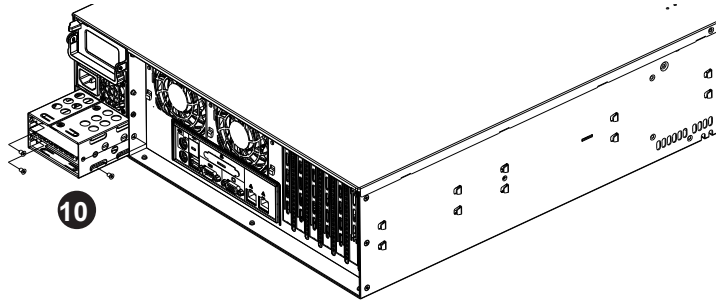


Figure F-6: SC836B Hard Drive Assembly Components

9. Route the cables out through the rounded opening in the side of the hard drive bay on the inside of the chassis.

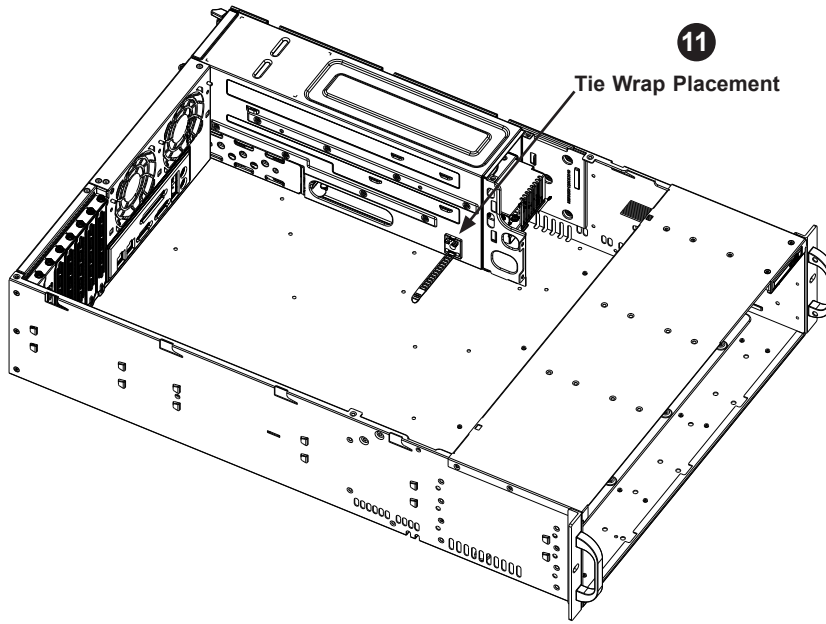


Figure F-7: Securing the Tie Wrap to the Hard Drive Bay

Installing Hard Drives in the Rear Hard Drive Carriers

The 2.5" hard drives which are to be installed in the rear of the SC836B are hot-swappable and may be installed without powering-down the server.

Note that only enterprise level hard drives are recommended for use in Supermicro chassis.

Installing the Hard Drives in the Carrier

1. Remove the screws securing the dummy drive to the hard drive carrier and remove the dummy drive from the carrier.

2. Insert a hard drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.

3. Allign the mounting holes in the drive with those in the carrier. Note that there are holes in the carrier marked "SAS" or “SATA” to aid in correct installation.

4. Secure the drive to the carrier with four screws. Use the four M3 flat-head screws included in the HDD bag of your accessory box. Note that the screws used to secure the dummy drive to the tray cannot be reused to secure the hard drive.

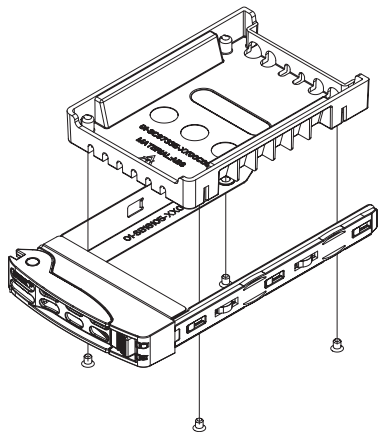


Figure F-8 Removing the Dummy Drive from the Hard Drive Carrier

Installing Hard Drives into the Rear Hard Drive Bays

Installing Rear Hard Drives

1. Using the thumb, push against the upper part of the hard drive handle. Push the hard drive into the hard drive bay horizontally as illustrated below, orienting the drive so that the release button is on the right.

2. Push the carrier into the bay until the handle retracts and the hard drive clicks into the locked position.

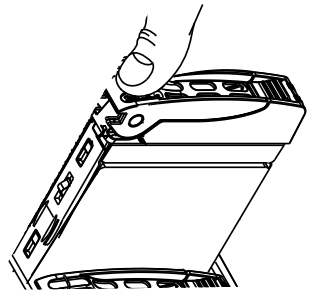


Figure F-8: Using the Thumb to Install the Hard Drive and Carrier

Removing Hard Drives From the Rear Hard Drive Bays

Installing Rear Hard Drives

1. Press the release button on the right-hand side of the hard drive. This will extend the hard drive carrier handle.

2. Use the hard drive carrier handle to pull the hard drive carrier out of the chassis.

Disclaimer (cont.)

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